

CONSTRUCTION METHODS AND EQUIPMENT

October, 1949



SAFETY IN CONSTRUCTION

First of Three Articles on DuPont's Procedure

A McGRAW-HILL PUBLICATION

NOW...
A NEW SPECIFICATION
THAT GUARANTEES
BETTER CONCRETE
CONSTRUCTION



SPECIFY REINFORCING BARS THAT MEET ASTM A305

for better bond at no extra cost

Be sure of the concrete reinforcing bars you buy! Be sure they have surface deformations that will provide good bonding strength! You can do this by specifying bars that meet the new American Society for Testing Materials Specification A305. They cost no more than ordinary deformed bars.

To meet this new specification, a bar must have ribs which are of a certain minimum height, and spaced no farther apart than 0.7 of the diameter of the bar. In addition, this specification sets forth other deformation requirements—all of which insure improved bonding characteristics.

With the expected early approval of a revision of the building code requirements by the American Concrete

Institute, increases in allowable design stresses will permit reinforcing bar users to take advantage of the improved bar designs guaranteed by ASTM A305. These advantages include a saving in steel where bond is the limiting design factor, and a saving in steel, bending costs, and placing costs through the elimination of unnecessary hooks. And a more economical, more efficient, and better appearing structure is assured because of the superior bond between steel and concrete provided by bars with the new deformation patterns. Take advantage, now, of these plus values offered by A305 reinforcing bars. Don't just specify "deformed bars"—specify "reinforcing bars meeting ASTM Specification A305."

P.S.
Hi-BOND bars not only
meet but beat Specification A305!
Their reversed, double helical ribs are more
closely spaced and higher than required. Get extra
value at no extra cost. Specify HI-BOND! Com-
plete information on request.

INLAND
HI-BOND
Reg. U. S. Pat. Off.

**The Reinforcing Bar with the
"BUILT-IN" ANCHORAGE!**

INLAND STEEL CO., 38 S. Dearborn St., Chicago, Ill. Sales Offices: Chicago,
Cincinnati, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

OTHER PRODUCTS: RAILS • STRUCTURALS • PLATES • SHEETS • STRIP
TIN PLATE • FLOOR PLATE • PILING • RAILS • TRACK ACCESSORIES



B.F. GOODRICH users report: Continued savings — thanks to double bruise protection

B. F. GOODRICH *Universals* were reported by one operator to be in good condition after daily quarry service for over 21 months. Another operator reports over 4500 service hours from *Universals* against only 1600 hours from another make in identical service. Still another reports told of tires that were still "young" at 3200 hours and probably good for thousands more. These actual user reports spotlight the great difference between various makes of off-the-road tires.

When results are measured, BFG tires always stand high. There are many reasons for the continuing top performance of B. F. Goodrich tires. For example, notice the tread on the

Universals in the picture above. It's designed to give traction both ways. More than that, it is made of specially compounded rubber . . . armor against sharp rocks and other tire killers.

Also, BFG tires have double bruise protection in the form of a *double nylon shock shield* . . . layers of nylon cord built between the tread and the body plies. Under impact, the strong, elastic nylon shields the all-rayon cord body. And there are two shields for double protection!

Only B. F. Goodrich gives you the added protection of the nylon shock shield; the added savings from (1) longer tire life (2) increased bruise resistance (3) less danger of tread sepa-

ration (4) more recyclable tires. Nylon shock shield costs no extra—you pay no premium.

There's a specially designed* BFG off-the-road tire for every need. See your B. F. Goodrich dealer or call *The B. F. Goodrich Company, Akron, Ohio.*



*Typical example: New ALL-NYLON tire for tough construction projects, quarry work, strip mining, etc. In all tests not a single tire blew out, not one flex break occurred!



.. a straight line

The straight-line operation of an Oliver "Cletrac" tractor and Sargent Overhead Shovel will cut your costs . . . plenty! Here's why!

This unit crowds *directly* back in digging or loading . . . moves *directly* forward to load out trucks. The shovel arms swing *directly* over the tractor. Contrast this fast action to ordinary loaders where the tractor must crowd into the pile . . . back out . . . turn around and travel to truck or dumping pile. Easy to see why jobs move so much faster . . . why you can really cut costs!

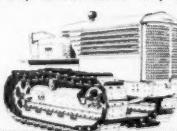
And, the Basic Overhead unit can be quickly and economically converted to a Backhoe, Bulldozer, Pipe Handler, or Log Loader . . . a complete crew at a fraction of the cost of combined individual units.

Your Oliver "Cletrac" Distributor will be glad to give the complete, cost-cutting story.

Cletrac
a product of
THE OLIVER CORPORATION

Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio

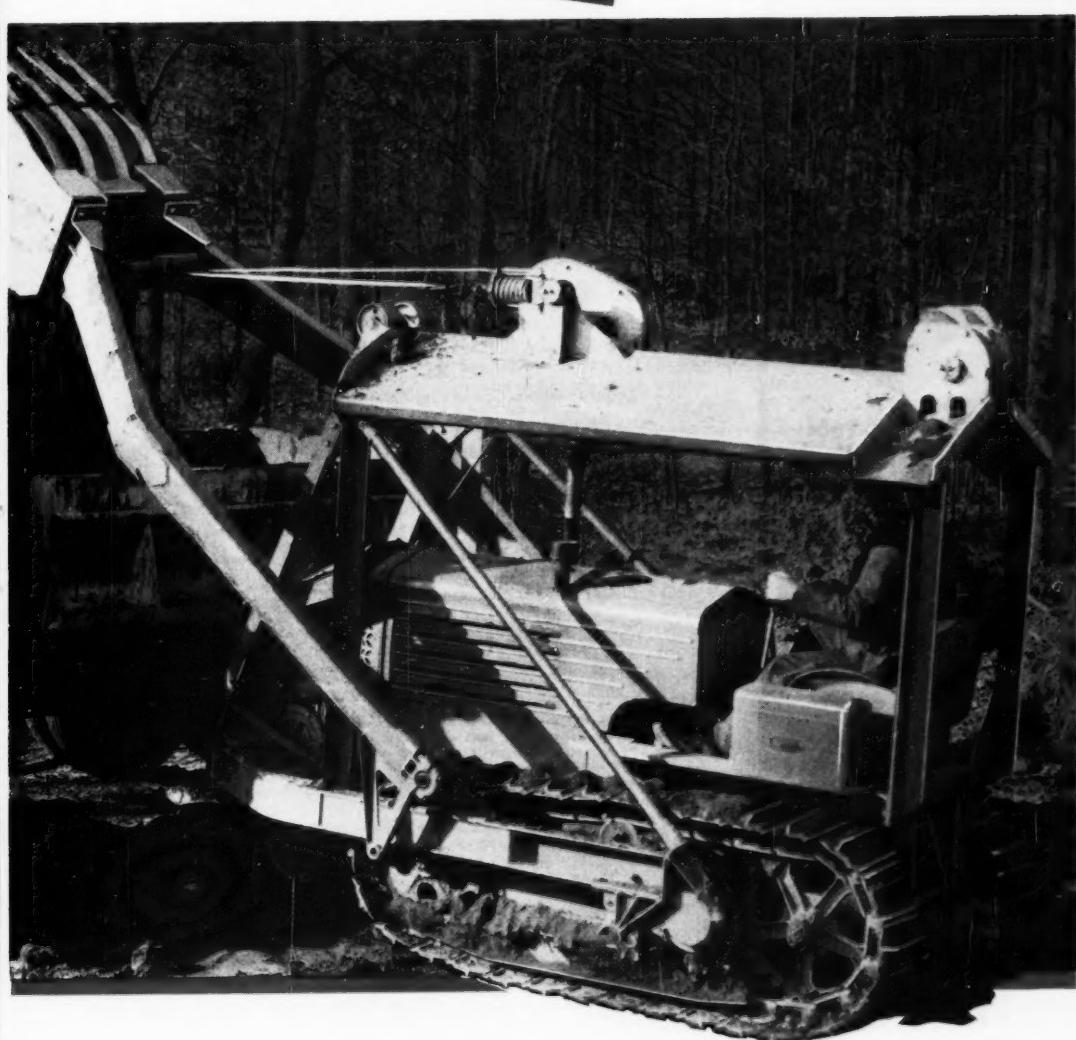
A complete line of crawler and industrial wheel tractors

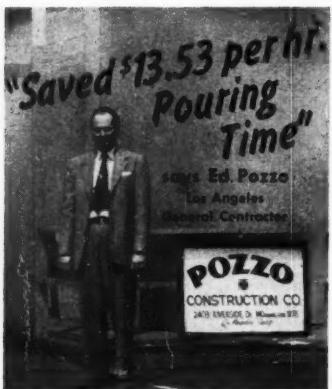


"The Sign of Extra Service"



**is the economical distance
between two points!**





"Whiteman Power Buggies"

were used on the W. T. Grant Co. Alhambra job to haul from concrete mix trucks to west wall forms. Cash savings amounted to \$13.53 per hour pouring time—savings I pass to the client."



You can do it, too!

Yes, Power Buggies will substantially reduce your costs. In fact, many contractors say the Power Buggy pays for itself on the first job.

Whiteman Power Buggy

...is made for hard work. Simple, rugged construction ... easy maintenance ... climbs 20% incline with full load... 2,000 lbs. or 12 cu. ft. ... speeds 2 to 16 miles per hour ... forward or reverse at full speed.

GET ALL THE MONEY-SAVING FACTS... SEND COUPON.

WHITEMAN MFG. CO.
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LOS ANGELES 26, CALIF.

I want to know how I can cut costs. Send me complete information about your Power Buggy and other labor-saving equipment at once.

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Company Name _____	_____
Address _____	_____
City _____	Zone _____ State _____
<input type="checkbox"/> General Contractor	<input type="checkbox"/> Engineering Firm
<input type="checkbox"/> Concrete Contractor	_____

Volume 31
Number 10

CONSTRUCTION METHODS AND EQUIPMENT

ESTABLISHED
1919

OCTOBER 1949

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"Let's Eat!"



A & P's NEW CONCRETE WAREHOUSE EXEMPLIFIES EFFICIENCY OF WORLD'S GREATEST FOOD-SERVICE ORGANIZATION

IN spanning the gap between thousands of fields and millions of tables, The GREAT ATLANTIC & PACIFIC TEA COMPANY employs the quality approach to quantity merchandising. Witness this new Produce-and-Meat Warehouse, covering an entire city block in Newark, N. J., linking food supply sources with great super-markets. Each kind of produce has its own storage conditions. Inside loading is provided—rail on one side—trucks on the other, with 21 motor-operated doors.

Top-grade construction—one of a number of projects built for A & P by WM. L. BLANCHARD CO., Newark. The 6,000 cu. yds. of concrete were designed for 5,000 lbs. compressive strength—readily achieved with Lone Star Cement and concreting know-how. Such structures exemplify efficiency that makes A & P Number One on the Eat Parade!

FALL CONCRETING REMINDER: Use 'Incor'® 24-Hour Cement—protect against sudden temperature drops. Without protection at 50°, common Fall condition, 'Incor' concrete attains stripping strengths, is safe from freezing, 2 or 3 days sooner. For timely illustrated booklet, "Cold Weather Concreting," write us at 342 Madison Ave., New York 17.

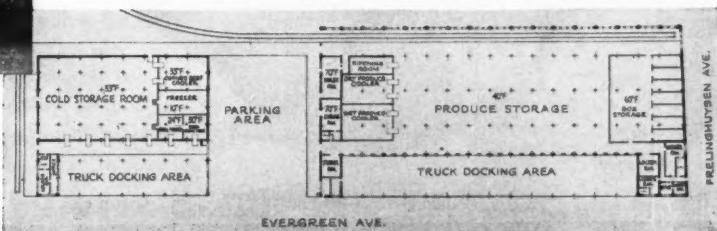
*Reg. U. S. Pat. Off.



Built by WM. L. BLANCHARD CO.,
Newark, N. J.

Architects: STAAB & STAAB, Newark
Ready-mix Lone Star Concrete:
J. P. CALLAGHAN COMPANY,
Harrison, N. J.

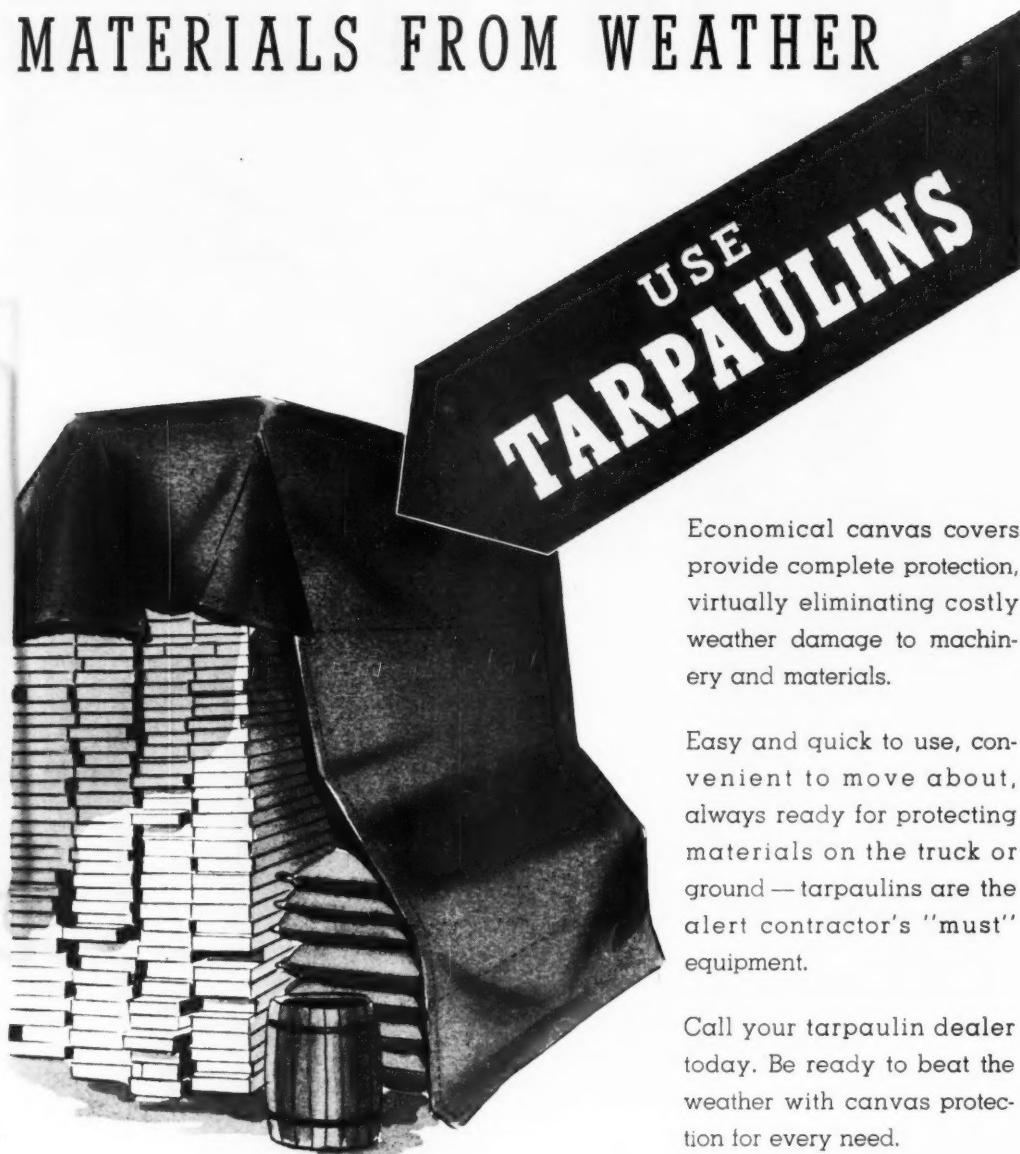
Lone Star Cement through:
F. BOWDEN COMPANY, Newark, N. J.



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Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS.
KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D. C.
LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

PROTECT CONSTRUCTION MATERIALS FROM WEATHER



USE
TARPAULINS

Economical canvas covers provide complete protection, virtually eliminating costly weather damage to machinery and materials.

Easy and quick to use, convenient to move about, always ready for protecting materials on the truck or ground — tarpaulins are the alert contractor's "must" equipment.

Call your tarpaulin dealer today. Be ready to beat the weather with canvas protection for every need.

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For greater
SPEED...
STABILITY...
SMOOTHER
RIDING...

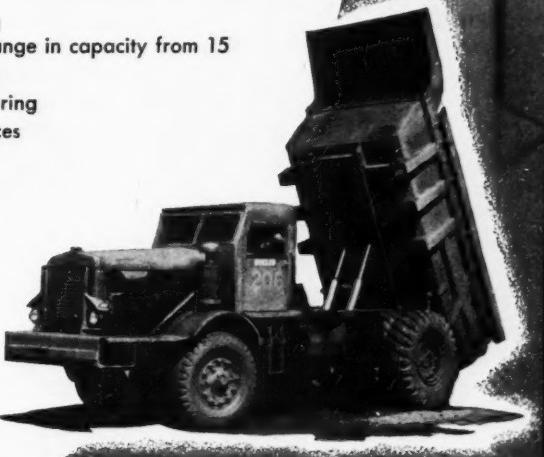


SPRING MOUNTED REAR-DUMP EUCLIDS

This new line of spring mounted Rear-Dump Euclids is designed for greater speed and stability on the haul road and long life in off-the-highway service. Heavy leaf springs are free floating in spring brackets to assure smooth riding and prevent breakage caused by twisting action on rough roads. Axles are positioned to the frame by longitudinal radius rods.

Rear-Dump Euclids with spring mounted drive axles range in capacity from 15 to 34 tons . . . diesel engines to 380 horsepower . . . and have travel speeds up to 32.2 m.p.h. Hydraulic booster steering assures positive control over all road conditions and reduces driver effort on sharp turns and rough hauls.

Built to the same high standards of construction and design that have made "Eucs" the favorite for tough hauling jobs, these improved models provide outstanding performance and lowest cost per ton or yard moved. Your Euclid distributor will be glad to show you how Euclid equipment can help cut your hauling costs and make more profit for you.



The EUCLID ROAD MACHINERY Co.

CLEVELAND 17, OHIO

CABLE ADDRESS: YUKLID

EUCLIDS

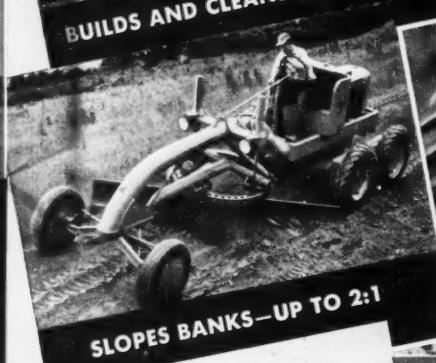


Move the world

LOW in Cost... BIG in Performance



BUILDS AND CLEANS DITCHES



SLOPES BANKS—UP TO 2:1



LEVELS SUB-GRADE; ideal for finishing

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ALLIS-CHALMERS

MODEL

D

WEIGHT—8,500 lbs.

Brake HP.—34.7 (famous

Allis-Chalmers gasoline engine)

SPEEDS—four forward, 2.40 to
18.61 m.p.h.; reverse to 2.37



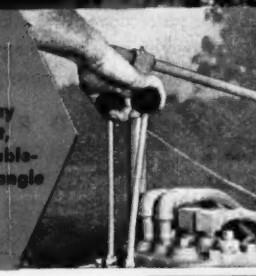
ALL-VIEW
CAB

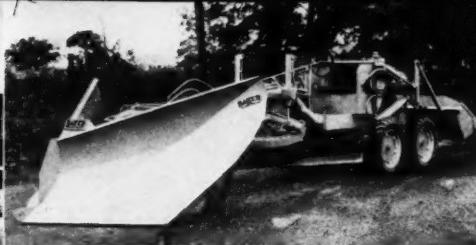
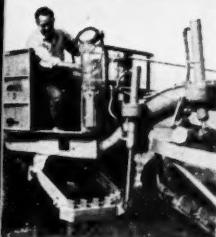
Lifted off
or replaced
in a jiffy.



HYDRAULIC
BLADE LIFT

...finger-play
control—fast,
positive, trouble-
free. Blade angle
set from
platform.





HYDRAULIC SCARIFIER — does a surprising job
... rear-end weight keeps teeth ripping uniformly,
at desired depth—smooth, positive steering.

LOADS MATERIAL into trucks with
Tractomotive Loader — from windrows
and stockpiles...surplus dirt or snow.

PLOWS SNOW with specially de-
signed Baker snowplow (backfills
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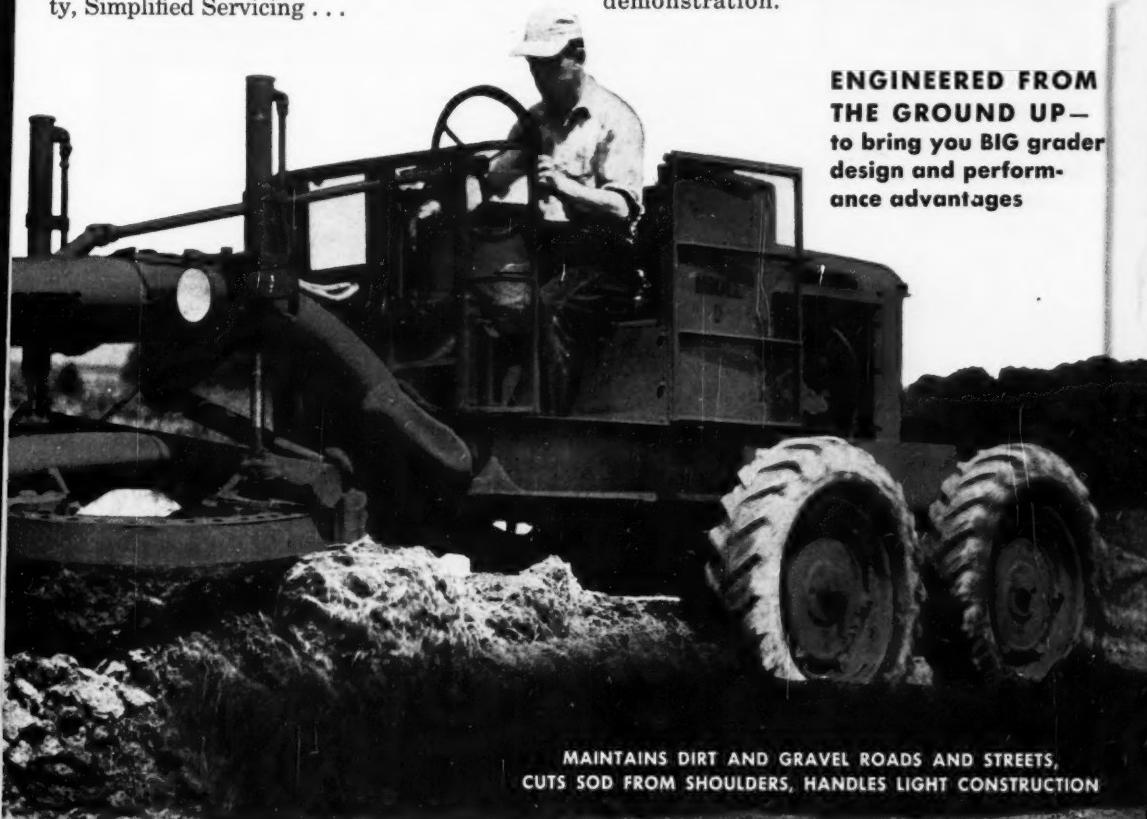
One-third the price of large motor graders

Yet has many big grader features — Tandem Drive, "Roll-Away" Moldboard, Tubular Frame, Hydraulic Blade Lift, Engine Over Drive Wheels, Drop Down Transmission, High Throat Clearance, Complete Operator Comfort, Full Visibility, Simplified Servicing . . .

. . . Plus special attachments that widen its usefulness — Rear-End Loader, Scarifier, V-Type Snowplow with interchangeable blade for backfilling and light 'dozer work. Also various other accessories.

Ask your Allis-Chalmers dealer for a demonstration.

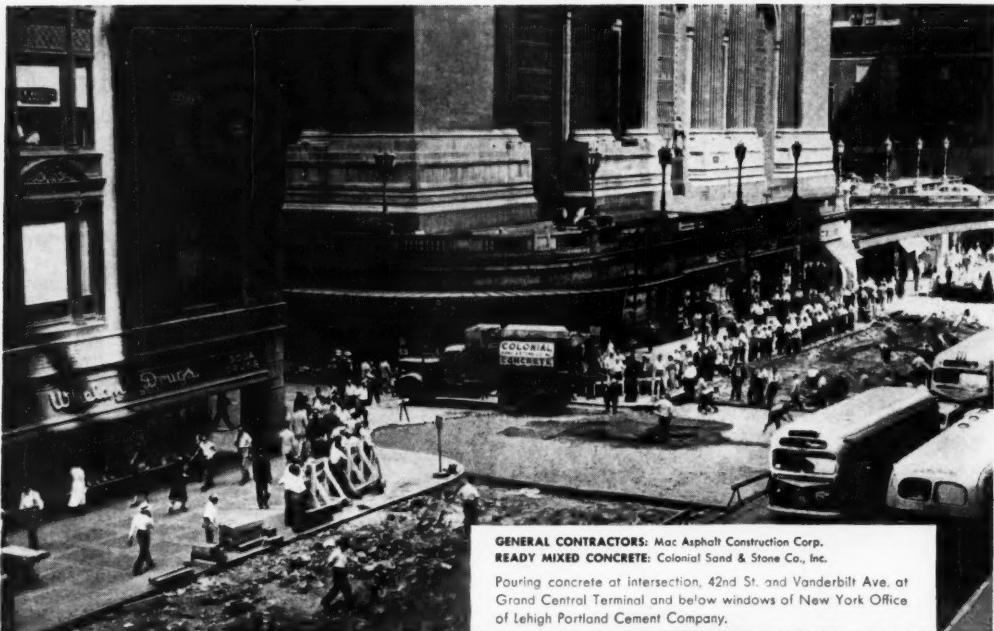
**ENGINEERED FROM
THE GROUND UP—
to bring you BIG grader
design and performance advantages**



MAINTAINS DIRT AND GRAVEL ROADS AND STREETS,
CUTS SOD FROM SHOULDERS, HANDLES LIGHT CONSTRUCTION

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.



GENERAL CONTRACTORS: Mac Asphalt Construction Corp.
READY MIXED CONCRETE: Colonial Sand & Stone Co., Inc.

Pouring concrete at intersection, 42nd St. and Vanderbilt Ave., at Grand Central Terminal and below windows of New York Office of Lehigh Portland Cement Company.



Fast work on world's busiest crossroads with **LEHIGH EARLY STRENGTH CEMENT**

New York City is repaving its famous 42nd Street. With heavy north-south cross traffic, it has the busiest intersections in the big town. To replace these intersections with minimum inconvenience to the public, calls for good management, fast work and a dependable quick-curing concrete—concrete made with Lehigh Early Strength Cement. And with this result:

Take one busy corner—42nd and Vanderbilt—where the Grand Central Terminal swallows and disgorges a half million people daily. Between 2

and 4 one afternoon, concrete for this intersection was poured. By the next morning, it was ready for the pounding feet of the first arriving commuters. At noon it was ready for emergency vehicular traffic.

That's construction speed . . . service speed . . . Lehigh Early Strength speed. Something to remember when you have a close schedule to meet.

Whatever your cement requirements, there are Lehigh Cements to fit them. Our Service Department will be glad to help you with any specific problem.

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LEHIGH AIR-ENTRAINING CEMENT • LEHIGH MORTAR CEMENT



NORTHWEST

on Hungry Horse Dam

Take a look at these pictures if you are figuring on rock work. Here is the beginning of the rock work on the \$100,000,000 project which will eventually be the 4th largest and the 5th highest dam in the country.

Anybody that knows the country around Hungry Horse in northwest Montana, knows that there is plenty of tough digging for a machine to handle.

And, anyone that knows the General-Shea-Morrison group of companies that are handling this contract, knows that they know equipment and buy the best for the heart of the job.

Northwest Shovels are real Rock Shovels and have been proved on hundreds of jobs like Hungry Horse.

If you have a real Rock Shovel you never have to worry about output in the Key Spots where the profits of a job begin. Plan ahead to have a Northwest and get the type of service Northwests are giving at Hungry Horse.

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*Move more yardage today
with the Scraper of tomorrow!*



WOOLDRIDGE Model TC-142

14.2 cu. yds. struck, 17.5 cu. yds. heaped

BETTER!
PROVED!
PROFITS!

Even faster loading is achieved by instant penetration of new 3-piece cutting edge. WIDER 65-inch apron opening and new curved ejector allow faster complete discharge of load. The rugged new TC-142 is built to "take" the heavier stresses imposed by today's more powerful tractors. Modern formed steel construction minimizes welding, increases structural strength. Higher yoke and ground clearance make maneuvering easy.

Proved Wooldridge advantages have been maintained. Original boiling bowl loading permits heaping volumes to surge freely into bowl. Pivot-tilt forced ejection dumps load faster with less cable strain. Rear-draft fulcrum leverage insures positive blade penetration. Cable is easily accessible, simply reeved over minimum of sheaves, all located away from load.

Job-proved, clean-lined, this IS the scraper of tomorrow—for greater production—for minimum operating cost—for highest profits TODAY! Contact your dealer or write for Bulletin TC-202 now for details. Other Wooldridge Scrapers from 7.5 to 27.5 cu. yd. heaped capacities.

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WOOLDRIDGE



TERRA COBRA high-speed
self-propelled earthmovers.

14.0 cu. yds. struck.

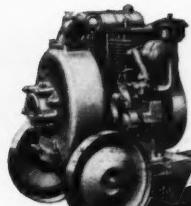
17.5 heaped.

RIPPERS

BULLDOZERS

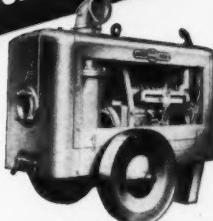
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PROVED AND APPROVED FOR EVERY TYPE OF EARTH-MOVING JOB



Get Our New Low Price on
Latest Heavy Duty
2"-3" Models with
Weather-Shielded
Engines.

LOW COST PUMPING
with Jaeger Sure-Primes



For actual priming speed, vacuum, capacity and pressure, for gallons of water moved per gallon of fuel, for self-cleaning ability, freedom from breakdowns and hours of service per dollar of purchase cost, your Jaeger distributor invites you to compare a Jaeger "Sure Prime" with any pump of like size and rating on the market.

4", 6", 8", 10" Pumps: Standard models to move big volume at low cost; "Pressure" models for work requiring higher heads.

Jaeger housings provide bigger fuel tanks and easier accessibility to engines—an exclusive feature.

save up to \$59 a day

JAEGER SELF-RAISING TOWER



with
MATERIAL CAGE
and
CONCRETE BUCKET



Contractors everywhere are profiting with it! Saves scaffold erecting time—saves repeated loss and cost of scaffold material—handles and places materials faster and surer. Take the dis-assembled tower and 17-hp hoist to your jobs on a truck. Two men assemble it on the ground in two hours. Then the Jaeger "Hoister" raises it to 37' standard height—67' with extra sections. Material cage accommodates two wheelbarrows or largest concrete cart—handles 1 ton loads with absolute safety. And, there's a Concrete Bucket available—easily interchangeable with the cage, on the job—water level capacity, 14 cu ft—working capacity, 11 cu ft (the full batch of an 11-S mixer!)

DOING 4 DAYS' WORK IN 3



new standard JAEGER cuts this user's cost

Barney Massa, Ft. Wayne, Indiana sewer contractor, learned years ago that he could drive sheeting 30% to 40% faster with full 90 lbs. air pressure at the tool than he could with a pressure of 70 lbs. To hold full pressure he used to operate two heavy drivers with a 160 ft. compressor instead of a 105.

Today he's using a Jaeger "new standard" Model 125 to do the same work at lower cost, and continues to sheet as many feet of trench in 3 days as would take 4 days to do with any 105 ft. compressor.

"Old standard" compressor ratings, set in 1932, don't fit today's tools. Jaeger "new standard" ratings do. From the Model 75, for a heavy duty breaker, up to the Model 600 for 2 heavy wagon drills, every Jaeger "Air Plus" rating is designed to give you steady full pressure and as much as 30% to 40% more production every hour you work. Ask your Jaeger distributor to prove this on your job. The Jaeger Machine Company, Columbus 16, Ohio.

Note: Because of "Fuel Miser" speed control, Jaegers use no more fuel than smaller units when not delivering more air.

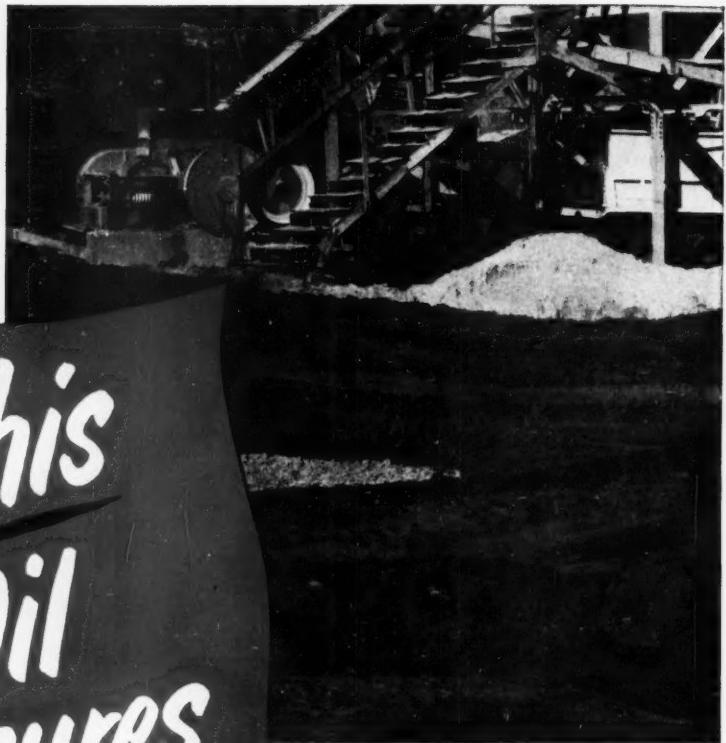


THE JAEGER MACHINE COMPANY

Columbus 16, Ohio—Cable Biganlite

Leading distributors in 130 cities of the United States and Canada sell, rent and service Jaeger Engineered Equipment

**PUMPS • AIR COMPRESSORS • MIXERS • HOISTS • TOWERS
BITUMINOUS PAVERS • CONCRETE SPREADERS AND FINISHERS**

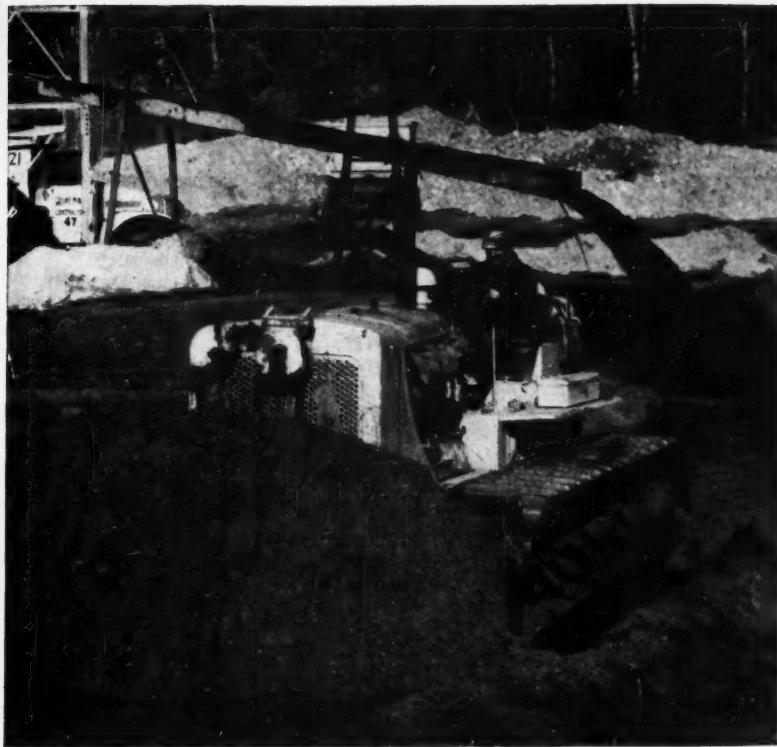


This
Oil
Assures
a Double
Saving

Texaco Ursa Oil X**
cleans as it lubricates
...reduces both fuel
consumption and
maintenance costs



TEXACO



WHEN you put *Texaco Ursa Oil X★* in your heavy-duty gasoline or Diesel engines, it goes right to work removing any accumulated deposits of carbon, varnish and sludge from vital engine parts. Then, when engines are clean, *Texaco Ursa Oil X★* keeps them clean!

Texaco Ursa Oil X★ is fully detergent and dispersive, and has exceptional resistance to oxidation. It keeps valves active and rings free, assuring full power from every gallon of fuel. It guards bearings against corrosion — makes all parts last longer. Thus, you save on fuel — save on maintenance.

For more efficient and economical operation of hydraulic mechanisms, use *Texaco Regal Oils (R & O)* as hydraulic mediums. They guard against formation of sludge and rust, prolong pump life, assure smoother operation and less time-out for servicing.

Use Texaco Products and the Texaco Simplified Lubrication Plan to cut costs on all your jobs. A Texaco Lubrication Engineer will gladly help you. Call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Lubricants and Fuels FOR ALL CONTRACTORS' EQUIPMENT

CoOperation

Building for lifelong customers, rather than for immediate profits, has always been the policy of the entire organization of LeTourneau Distributors. They honestly believe that the sale of a piece of equipment is not the conclusion of their effort, but is just the beginning. You can count on every man in their organization to work toward closest customer cooperation by: (a) putting the right tool on the right job; (b) helping the owner and operator obtain maximum production with it; and (c) supplying courteous, prompt service throughout the lifetime of every LeTourneau machine in the field.

Whenever you need help in job planning and operation, want service, or information on application of construction equipment, call your LeTourneau Distributor. We're proud of his record as a partner in our business . . . proud of the job he is doing. You'll find him quick to respond . . . conscientious, impartial . . . always ready to serve you to your best interest . . . a good friend to know.

R. G. LeTourneau, Inc.
Peoria

Illinois



1

Job Cost Planning

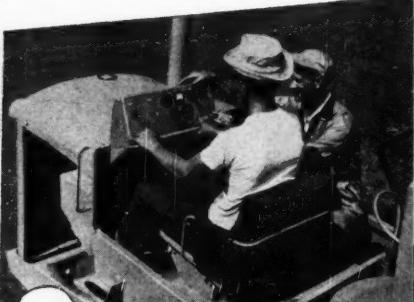
To attain closest cooperation among customer, distributor and factory, your LeTourneau Distributor and company field engineers are always available to help study project requirements . . . analyze costs . . . and suggest, impartially, the most efficient methods of getting the work done.



2

Expert Inspection

Upon arrival of equipment at the job, your LeTourneau Distributor, or factory service experts, thoroughly check, inspect and test every LeTourneau machine to make sure that it is delivered to you in A-1 condition . . . ready to fulfill every promise of lowest-net-cost-per-yard operation.



3

Operator Instruction

To assure you maximum production efficiency from your men and machines, factory-trained Distributor men give your operators practical, first-hand instruction on correct care and operation of equipment . . . and help set up proper lubrication, service, and preventive maintenance schedules.



4

Application Counsel

Cooperation extends out into the field, onto the job, where Distributor and LeTourneau engineers help plan haul routes, cut and fill areas, and assist in establishing overall job operations for the most efficient application of this high-speed, rubber-tired excavating, hauling and dozing equipment.



5

Prompt Parts & Service

Adequate stocks of genuine parts, prompt delivery, and efficient shop and field service facilities are, of course, major obligations of your LeTourneau Distributor. Regardless of age of equipment, or location of future jobs, you can always depend on this service, whenever and wherever needed.



6

Factory-Trained Staff

At the LeTourneau factories, Distributor personnel learn the latest methods and equipment by working on actual machines. These factory-trained Distributor men assure top-quality service in the field . . . and prove Distributor cooperation in providing closest possible attention to your needs.



SEE US FOR LOWEST-NET-COST-PER-YARD.

IS OUR BUSINESS

ALABAMA Miller G. Williams Machinery Co., Inc. MONTGOMERY BIRMINGHAM	LOUISIANA E. C. Ray Machinery Co. SHREVEPORT	NEW YORK (Cont.) The Jaeger-Lembo Machine Corp. FLUSHING, L.I.	VIRGINIA Baldwin Machinery Co. ROANOKE
ARIZONA Arizona Equipment Sales, Inc. PHOENIX	MAINE Parker-Danner Co. AUGUSTA	NORTH CAROLINA Mitchell Distributing Co., Inc. SPRUCE PINE RALEIGH	WASHINGTON Modern Machinery Co., Inc. SPOKANE
ARKANSAS Tri-State Equipment Co., Inc. LITTLE ROCK	MARYLAND General Supply & Equip. Co., Inc. BALTIMORE	NORTH DAKOTA Smith, Inc. FARGO	WEST VIRGINIA Baldwin Machinery Co. CHARLESTON CLARKSBURG
CALIFORNIA Crook Company LOS ANGELES BAKERSFIELD Capitol Tractor & Equip. Co. SACRAMENTO	MASSACHUSETTS Parker-Danner Co. HYDE PARK	OHIO Gibson-Stewart Company CLEVELAND COLUMBUS	WISCONSIN Miller-Bradford & Risberg, Inc. EAU CLAIRE MADISON
COLORADO The Colorado Builders' Supply Co. DENVER	MICHIGAN Contractors' Machinery Co. GRAND RAPIDS DETROIT Straits Engineering Co., Inc. SAULT STE. MARIE	OKLAHOMA Kessler-Simon Machinery Co. OKLAHOMA CITY	WYOMING The Colorado Builders' Supply Co. CASPER
CONNECTICUT Parker-Danner Co. HARTFORD	MINNESOTA Philippi-Murphy Equipment Co. MINNEAPOLIS	OREGON Loggers & Contractors Machy. Co. PORTLAND KLAMATH FALLS EUGENE	ALASKA AND YUKON TERRITORY Airport Machinery & Storage Co. ANCHORAGE
DELAWARE General Supply & Equip. Co., Inc. BALTIMORE, MD.	MISSISSIPPI Watkins-Aldridge Equipment Co., Inc. JACKSON	PENNSYLVANIA Dravo-Doyle Company Farnival Machinery Co. PITTSBURGH	Canadian Distributors
DISTRICT OF COLUMBIA General Supply & Equip. Co., Inc. BALTIMORE, MD.	MISSOURI The Victor L. Phillips Co. SPRINGFIELD KANSAS CITY	RHODE ISLAND Parker-Danner Co. PROVIDENCE	ALBERTA Castello Equipment Co., Ltd. CALGARY EDMONTON
FLORIDA Florida Equipment Co. of JACKSONVILLE MIAMI TAMPA	MONTANA Montana Powder & Equipment Co. HELENA BILLINGS	SOUTH DAKOTA Philippi-Murphy Equip. Co. of SIOUX FALLS	BRITISH COLUMBIA Vancouver Equipment Corp., Ltd. VANCOUVER
GEORGIA Gill Equipment Company ATLANTA	NEBRASKA Fuchs-Clayton Machinery Co. OMAHA	TENNESSEE Dempster Brothers, Inc. KNOXVILLE NASHVILLE CHATTANOOGA	MANITOBA Prairie Equipment & Radiators, Ltd. WINNIPEG
IDAHO Maho Machinery Co. BOISE	NEVADA Sierra Machinery Co. RENO	TEXAS Contractors' Equip. & Supply Co. of EL PASO	NEW BRUNSWICK Eastern Equipment, Ltd. FREDERICTON
ILLINOIS Stockberger-Seastrom, Inc. MELROSE PARK PEORIA	NEW HAMPSHIRE Parker-Danner Co. MANCHESTER	NEW JERSEY The Jaeger-Lembo Machine Corp. of N.J. SPRINGFIELD	NEWFOUNDLAND Newfoundland Tractor & Equip. Co., Ltd. ST. JOHN'S
INDIANA Stockberger-Seastrom, Inc. FT. WAYNE INDIANAPOLIS	NEW MEXICO Contractors' Equipment & Supply Co. ALBUQUERQUE	NEW YORK Karrer Equipment Co., Inc. SYRACUSE	NOVA SCOTIA Foulis Engineering Sales, Ltd. HALIFAX SYDNEY
IOWA The James W. Bell Company, Inc. CEDAR RAPIDS DES MOINES	NEW YORK Rupp Equipment Company BUFFALO ROCHESTER	UTAH J. K. Wheeler Machinery Co. SALT LAKE CITY	ONTARIO The General Supply Co. of Canada, Ltd. OTTAWA ISINGTON
KANSAS The Victor L. Phillips Co. WICHITA		VERMONT Parker-Danner Co. HARTFORD, CONN.	Prairie Equipment & Radiators, Ltd. FORT WILLIAM
KENTUCKY Wilson Machinery & Supply Co., Inc. LEXINGTON			QUEBEC The General Supply Co. of Canada, Ltd. MONTREAL
			SASKATCHEWAN Construction Equipment Limited REGINA



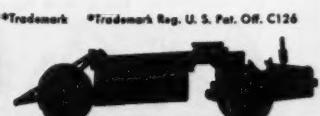
TOURNADOZERS



TOURNAPULLS



TOURNAROCKERS

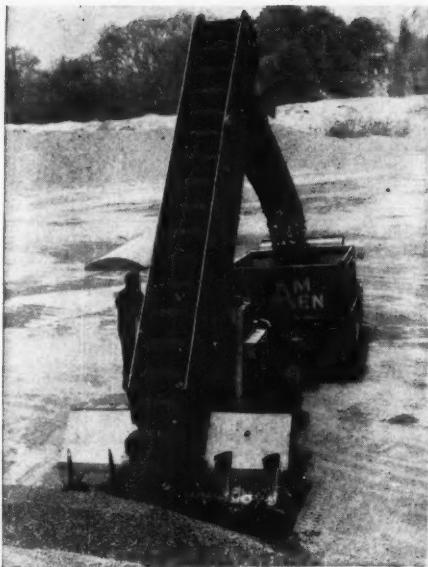


TOURNAHOPPERS

**Trademark

*Trademark Reg. U. S. Pat. Off. C126

Your LeTOURNEAU Distributor



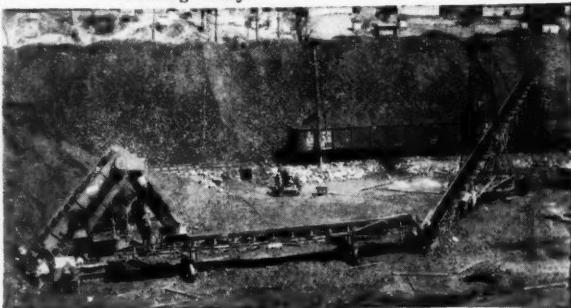
HAISS LOADER IN ACTION
(Note the full Buckets)

HAISS LOADER and
Conveyors Combination

•**HAISS** **BUCKET LOADERS**

Load 3 To 8 Yards Per Minute

Haiss Bucket Loaders are used for excavating — rehandling — stripping and loading: sand — gravel — stone top-soil — coal and similar materials. Self Propelled, Self Feeding — wheel or crawler mounted — One man operation. Write for Bucket Loader Catalog today.



•**CONVEYORS**

portable or
stationary

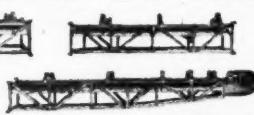
HAISS FLAT or TROUGH BELT CONVEYORS (Model 481 and 482)

For all bulk materials. Mounted on "V" or mast truck with swivel wheels. Ask for Bulletin No. 481 for coal or coke handling—Bulletin No. 482 for sand and gravel, etc.



HAISS SECTIONAL CONVEYORS

Made in easily assembled sections. Portable as above or stationary as below — for handling all bulk materials — Ask for Bulletin 487.



•**CAR UNLOADERS**

HAISS CAR UNLOADERS (Models 483 and 484)

Belt and drag types for low-cost undercar unloading from hopper bottom cars. Ask for bulletin No. 483-4.



•**BUCKETS**



EXCAVATING — REHANDLING

Experienced Haiss representatives are located in all principal cities. For further information, write, phone or wire.

GEORGE HAISS MFG. CO., INC., division of **PETTIBONE MULLIKEN CORP.**

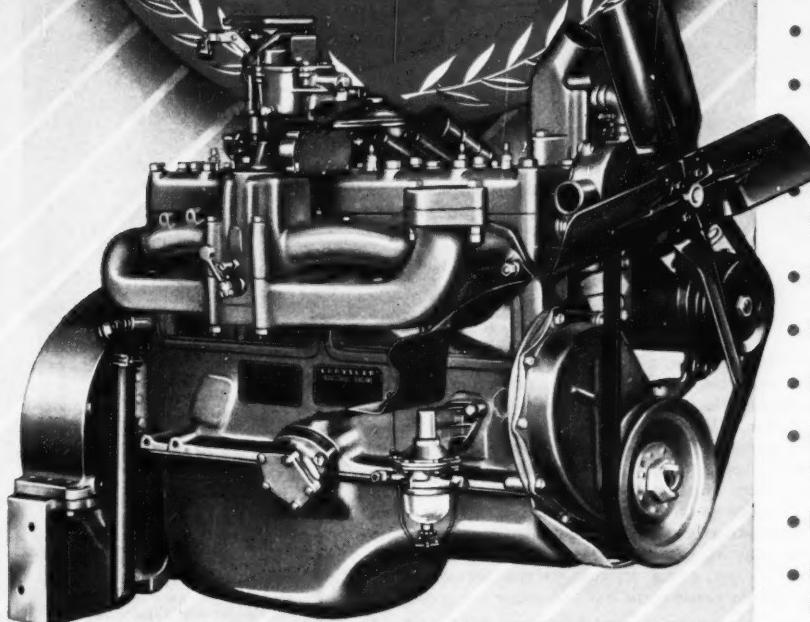
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point the way to your
best buy
in industrial engines



CHRYSLER Industrial Engines and Power Units

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- In the past 25 years, Chrysler Engineers have pioneered, developed or introduced a greater number of noteworthy Engineering and Design Features for gasoline engines than any other manufacturer.

- High Compression Engine
- Fluid Drive
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- Sodium Cooled Valves
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- Stainless Steel Valve Springs
- Oil Filter
- Carburetor Air Cleaner
- Rotor Type Oil Pump
- By-Pass Thermostat for Cooling System
- Full Flow Oil Filter
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And along with leadership in Engineering and Design has come leadership in Service through a highly developed world-wide service organization. *Industrial Engine Division, The Chrysler Corporation, 12200 East Jefferson Avenue, Detroit 31, Michigan.*



• Users asked for it! Here it is! Now, a big-producing $\frac{3}{4}$ -yd. Lorain TL-25 that gives you more of everything for your money! More output—with the big-producing $\frac{3}{4}$ -yd. dipper! More weight—and greater crane capacities. This new addition to the Lorain line brings you the most modern machine of its class...with more features for high production and long life. Here are 16 plus values in the new Lorain TL-25... (1) INTERCHANGEABLE MAJOR COMPONENTS (2) 5 IDENTICAL SHOE CLUTCHES (3) ANTI-FRICTION BEARINGS (4) OIL-ENCLOSED CUT GEARS (5) INTERCHANGEABLE PARTS (6) A ONE-PIECE TURNTABLE BED (7) HOOK ROLLERS (8) STANDARD AND WIDE GAUGE CRAWLERS (9) EXTRA-LONG CRAWLERS FOR DRAGLINES (10) TWO CRAWLER SPEEDS (11) DROP FORGED TREADS (12) POSITIVE TRAVEL LOCK (13) "FULL CIRCLE" STEERING (14) POSITIVE INDEPENDENT SHOVEL CROWD (15) ALL-PURPOSE CRANE BOOM (16) GOOSENECK HOE BOOM.

Plan now to equip your next job with the stand-out $\frac{3}{4}$ -yd. Lorain TL-25... Your nearby Thew-Lorain Distributor will give you all the details!

THE THEW SHOVEL CO., LORAIN, OHIO



THEW • Lorain®



A NEW $\frac{1}{2}$ -YD. LORAIN



For The Smaller Jobs

The new TL-15 rounds out the "TL" series. It's a lighter $\frac{1}{2}$ -yd. version of the TL-25—with shorter tail swing and narrower crawler mounting—yet gives you the outstanding plus values of the TL-25. Here's the best $\frac{1}{2}$ -yd. buy for your money.

Get the New Lorain TL-25 and TL-15 story from your Thew-Lorain Distributor.

SHOVELS • CRANES
DRAGLINES • HOES
CLAMSHHELLS



DeSalvo Construction Company, Cincinnati, Ohio, is extending Wright Road in that city. The job consists of moving approximately 800,000 cubic yards of earth and laying 3 miles of 4-lane divided concrete roadway. Cost, over \$2,000,000. This contractor reports outstanding results with Gulf lubricants and fuels.

"Our equipment delivers better performance with GULF PRODUCTS



on the job

— says highway contractor

DeSalvo Construction Company, Cincinnati, Ohio, like many other leading contractors, has a proven formula for making equipment deliver beat-the-schedule performance: Gulf quality petroleum products, plus careful maintenance. This formula has paid big dividends over a period of years.

Always of the same uniform high quality, Gulf lubricants and fuels work as a team to help contractors do a speedier, more profitable job. Gulf lubricants provide an extra margin of protection to equipment under all types of operating conditions—and Gulf fuels insure maximum engine power and efficiency.

Write, wire, or phone your nearest Gulf office today and arrange to use Gulf Quality Lubricants

and Fuels on your next job. They are quickly available to you through 1200 warehouses in 30 states from Maine to New Mexico.



Gulf Oil Corporation - Gulf Refining Company

Division Sales Offices:

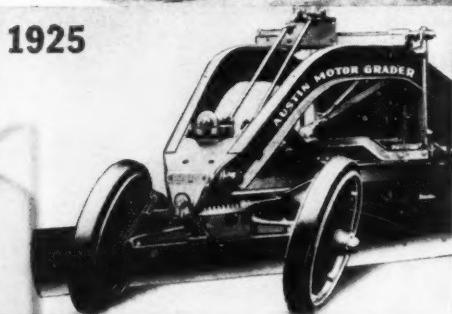
Boston • New York • Philadelphia • Pittsburgh • Atlanta
New Orleans • Houston • Louisville • Toledo

1879

Building a

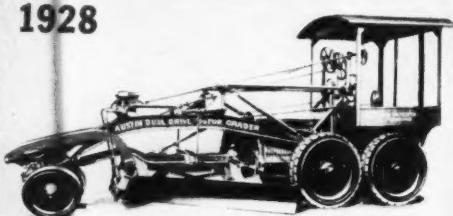


1925



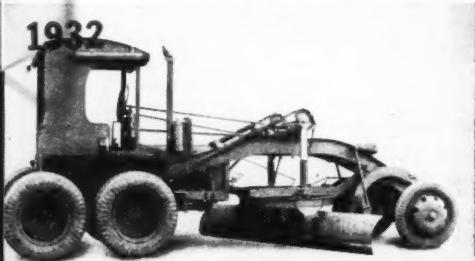
1925—First Motor Grader with leaning front wheels.

1928



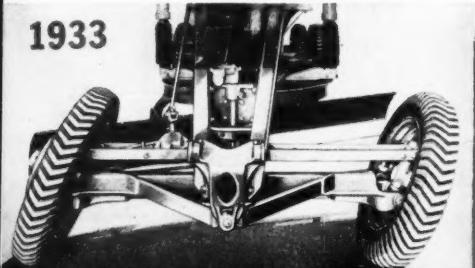
1928—First Motor Grader with dual (tandem) drive.

1932



1932—First Motor Grader with hydraulic control.

1933



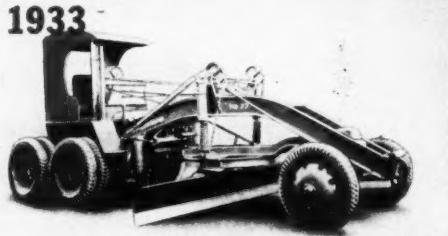
◀ 1933—First Motor Grader with wide front axle.

*Motor Grader History is
AUSTIN-WESTERN History*

Builder of the world's
first road grader in 1879,

Austin-Western has pioneered more
motor grader features than any other manufacturer,
through the years. The motor grader of 1933 was a much
better machine than those of the early 20's, but was still
almost totally incapable of doing heavy ditching and
rough grading. It remained for Austin-Western to take the
final step in motor grader design—the all-wheel drive,
all-wheel steer "99" Power Grader of 1937, which gave the
owner a machine capable of going places where ordinary
motor graders couldn't go . . . doing things they couldn't do.

1933



1933—First Motor Grader with diesel engine.

1937



1937—First All-Wheel Drive,
All-Wheel Steer Power Grader.

Greater POWER GRADER

1949



the POWER GRADERS that have Everything

The Austin-Western Power Grader of today owes its matchless performance to *completely effective* use of power. Through All-Wheel Drive, every pound of weight is a powered pound, harnessed to a driving wheel—and contributing every ounce to tractive effort. This tremendous traction—perfectly directed and controlled through All-Wheel Steer—provides superb earth moving ability, and mastery of all types of work. Additional values are offered by specialized attachments, which greatly increase the usefulness and day-in and day-out profit making ability of the graders.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.



"88-H"—a new model which brings to the field of motor graders of medium size the extra traction and power-at-the-blade of all-wheel drive; the unequalled maneuverability of all-wheel steer, and the other exclusive features which have made the "99's" so deservedly popular.

"99-H"—the "old reliable"—out in front of the motor grader parade since the original "99" of 1937. Popular with contractors and highway departments for its all-around performance, under all conditions, in all seasons.

MASTER "99"—another new model, combining all of the time- and money-saving features of the "99-H" with the extra power, traction and road speed of its 100 horsepower engine. Tops in performance and value for those who want the best.

BUILDERS OF ROAD MACHINERY
Austin SINCE 1893 **Western**

KEARNEY & TRECKER
MILWAUKEE

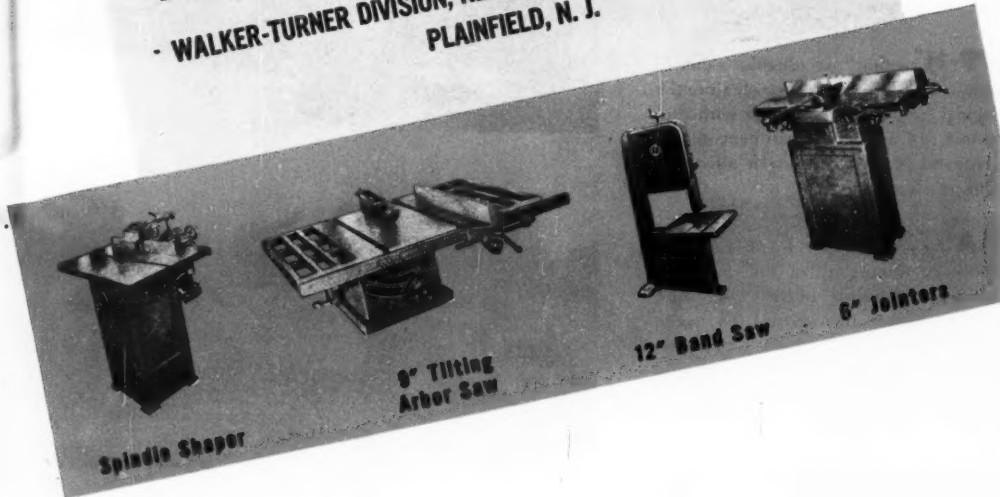
walker.
Turner

51 YEARS OF LEADERSHIP
PIONEERING IN PRECI-
SION MILLING MACHINES •
BORING MACHINES AND
SPECIAL EQUIPMENT...

28 YEARS OF LEADERSHIP
IN LIGHT MACHINE TOOLS
VOLUME PRODUCTION •
HIGH QUALITY AND
POPULAR PRICES...

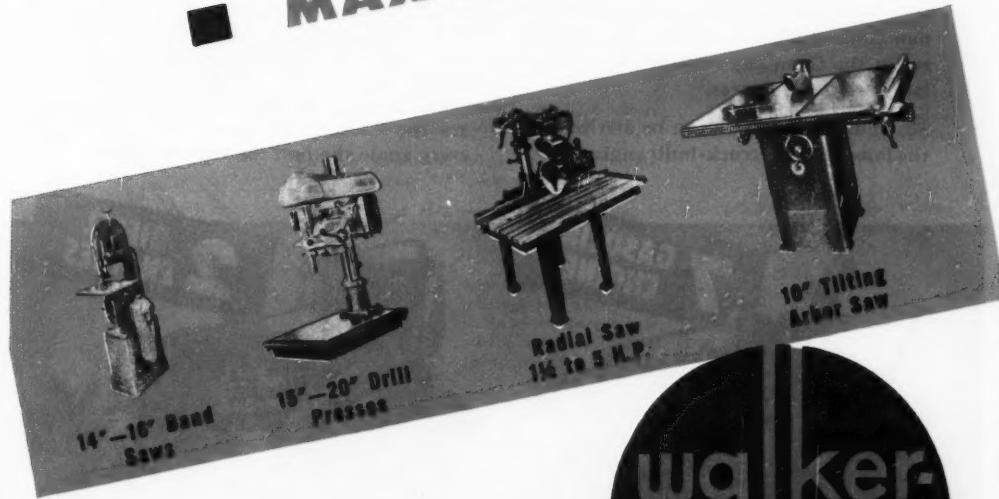
Combining the experience of two pioneer organizations
and their affiliated research, manufacturing facilities and
know how—the Walker-Turner Division at Plainfield,
N. J. is now supplying light machine tools of ever-
increasing standards of performance, long life, and trouble
free operation.

WALKER-TURNER DIVISION, KEARNEY & TRECKER CORPORATION
PLAINFIELD, N. J.

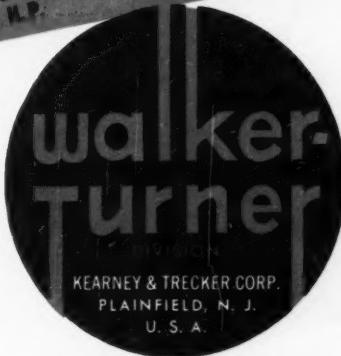


RADIAL SAWS • BAND SAWS • DRILL PRESSES • TILTING ARBOR SAWS • JIG SAWS • TABLE SAWS • JOINTERS • LATHES • BELT AND DISC SURFACERS

■ SOUND POLICIES
 ■ IMPROVED FACILITIES
 ■ NEW DESIGNS
 ■ MAXIMUM VALUES



N E W C A T A L O G
 The first of several new catalogs in process is now ready for distribution, write now for your free copy . . . All the latest models are fully described, the complete Walker-Turner line is illustrated. A post card will bring your copy by return mail, or ask your dealer for a copy. *Walker-Turner Machine Tools are sold only through Authorized Dealers.*



GMC radiator grilles are as durable as they are distinctive. All 300 to 900 series grilles are frame-mounted, angle-braced and surrounded by bars of heavy, spring steel bumper stock.



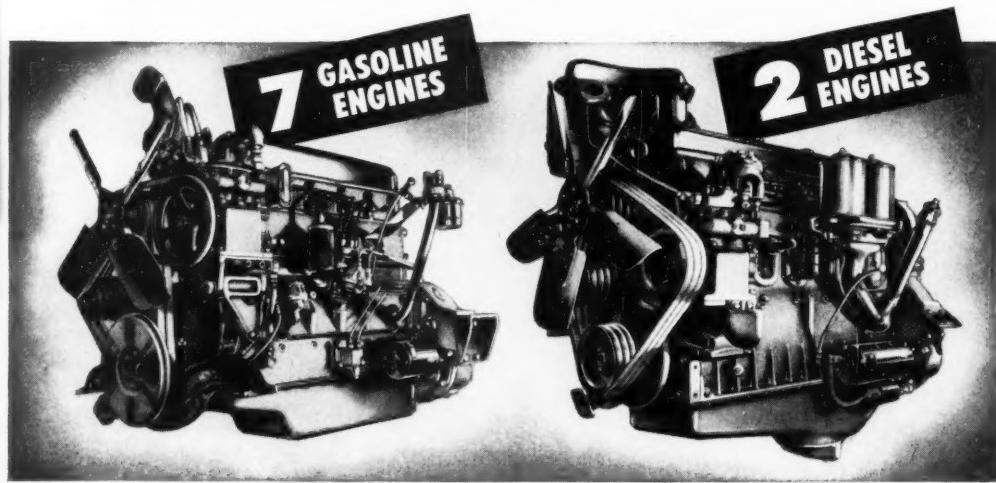
BACK OF THESE "BUMPER-BAR" GRILLES . . . Best Engines in the Business

The increasing popularity and acceptance of GMC trucks are reflected in current registration figures which show GMC making substantial gains in new truck sales. In fact, new GMC truck registrations are the highest in the Company's history according to latest available figures.

Much of this increase can be attributed to the famous GMC truck-built engine line . . .

because everyone recognizes the engine as the "heart" of any motor truck.

GMC now offers an engine range to fit every vocational requirement. Each engine, gasoline or Diesel, is the most powerful in its class with the most advanced features of design and construction ever offered by GMC. From every angle GMC truck engines are the "best in the business" . . . from every angle the best for your business.



GMC gasoline engines range from 228 to 503 cu. in. displacement and from 95 to 190 horsepower. From the smallest to the largest, they are all GMC-built . . . all of war-renowned "Army Workhorse" design.

GMC
GASOLINE • DIESEL
TRUCKS

GMC Diesel trucks are powered by famous GM 2-cycle four and six cylinder Diesel engines that are outstanding for light weight and great economy. The four develops 133 horsepower; the six provides 200.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

FOR BIG OUTPUT ON WHEELS

Look into the New Bucyrus-Erie 22-B Transit Crane

Now you can get the 22-B on a big fast-moving new wheel mounting! That means speedy mobility plus famous 22-B output, dependability, and economy—the combination you need for fast profitable handling of scattered, diversified jobs.

Look over the partial list of important features that make the new 22-B transit crane outstanding among wheel-mounted machines. Ask your Bucyrus-Erie distributor for complete details today.

BUCYRUS-ERIE COMPANY • South Milwaukee, Wis.

Convertible -

- CRANE
- CLAMSHELL
- DRAGLINE
- SHOVEL
- DRAGSHOVEL

- ✓ Bucyrus-Erie Wheel Mounting by Sterling.
- ✓ 181" wheelbase.
- ✓ 8'0" width over standard tires and guards.
- ✓ 142 H.P. engine in wheel mounting.
- ✓ 31 miles per hour.
- ✓ Hydraulic booster for a steering gear (extra).
- ✓ Same basic upperworks as 22-B caterpillar-mounted machines.
- ✓ Full power-controlled boom and safety boom stops for lifting crane.
- ✓ New stronger crane type boom for crane, clamshell, or dragline.
- ✓ Booms 30 to 80 feet; lifting capacity with 40-ft. boom at 48° angle and 30-ft. operating radius, outriggers set—10,200 lb.
- ✓ New type 8- or 16-part boom suspension.
- ✓ Anti-friction bearings on all operating parts in hoist, swing, boom hoist, and crowd machinery on the main frame.
- ✓ Flood oil lubrication for transmission chain and all gears (except main swing gear and pinion).
- ✓ Interchangeable friction clutches and clutch parts for hoist, swing, crowd, propel.
- ✓ Reversible friction band linings — practically double lining life.

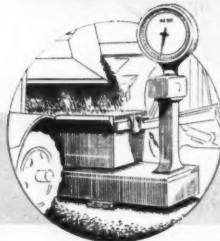
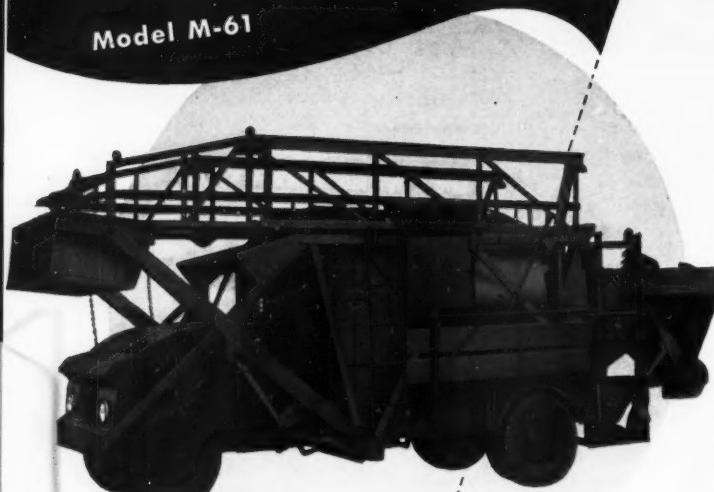
BUCYRUS
ERIE

South Milwaukee, Wisconsin

Extra Profits...

ONE-YARD
MIXERMOBILE

Model M-61



5,000-lb. scale weighs aggregate batch in skip.

**A COMPLETE MOBILE CONCRETE
MIXING UNIT AND ELEVATOR**

Saves time and labor! More jobs covered! Less Maintenance! The One-Yard Mixermobile is the most economical method of handling concrete on the job. Costs of hauling and erecting expensive equipment are eliminated. Labor costs are minimized. One man at centralized controls handles the entire operation... "sets-up" equipment ready for pouring... then controls every operation from dump truck to deck.

The One-Yard Mixermobile can turn out 200 cu. yds. of concrete in 8 hours. Also provides valuable storage space when handling ready-mix concrete. It travels at highway speeds comparable to trucks with similar loads.

**FOR GREATER CONCRETE CONSTRUCTION
SAVINGS CONTACT YOUR NEAREST DEALER**

NOTE: The Mixermobile Manufacturers reserve the right to make improvements in design and specifications without notice.

MIXERMOBILE MANUFACTURERS



6855 N. E. HALSEY STREET • P.O. BOX 5108 • PORTLAND 16, OREGON

**A MIXERMOBILE
DEALER IS NEAR YOU**

MOBILE ELEVATOR & EQUIP. CO. Mobile, Ala.
EQUIPMENT SALES CO. Phoenix, Ariz.
STANDARD EQUIPMENT & SUPPLY CO.

North Little Rock, Ark.

SHAW SALE & SERVICE CO. Los Angeles, Calif.

MIXERMOBILE CO., INC. Los Angeles, Calif.

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CAPITOL TRACTOR & EQUIP. CO. Sacramento, Calif.

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TRACTOR AND MACHINERY CO. Atlanta, Ga.

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MYHRA EQUIPMENT CO. Fargo, N. D.

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BEMISS EQUIPMENT CO. Richmond, Va.

COLUMBIA EQUIPMENT CO. Seattle, Wash.

ANDREWS EQUIPMENT SERVICE Spokane, Wash.

M. R. HAMIL, INC. Charleston, West Va.

HUNTER TRACTOR & MACHINERY CO.

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MAC MOTORS & EQUIP. CO., LTD. Calgary, Alberta

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LAURENTIDE EQUIPMENT CO. Montreal, Quebec

W. F. FULLER MACHINERY CO. Regina, Saskatchewan

ALASKA

YUKON EQUIPMENT CO. Seattle, Wash.

EXPORT

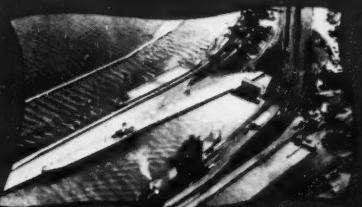
COLUMBIA EXPORTERS, INC. Portland, Ore.



Hydroseparator and roke classifier, part of a complete new sand and gravel plant installed for New York Trap Rock Company.



South elevation of main hospital, built for the Veteran's Administration at Wilkes Barre, Pennsylvania.



Coal transfer docks, each capable of berthing four coal carriers simultaneously, built for Baltimore & Ohio Railroad at Lorain, Ohio.



Paper machine installation, part of a complete new pulp and paper mill and bag plant built for the Alabama (St. Regis) Pulp & Paper Company.

VERSATILITY...

**the coordination of skilled
personnel and proper
equipment to effectively
handle all phases of your
construction problems!**

Have you an unusual construction problem? Are you contemplating an extraordinary or difficult type of construction, or perhaps a complete "turn key" job? Then you will want the services of a builder whose ability to handle such problems is based upon many years of experience.

During its many years in the heavy and industrial construction industry, Merritt-Chapman & Scott Corporation has successfully handled hundreds of such diverse projects as chemical plants, bridges, boiler plants, bulkheads, pulp and paper mills, tunnels, hospitals, subaqueous pipelines, steel mills, housing projects, wharves and piers. Many of these projects included the purchasing and installation of all mechanical, piping, and electrical facilities and equipment as well as the construction of all buildings.

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Whether you contemplate the installation of new equipment, an addition to your present facilities, or a complete new industrial plant, the services of Merritt-Chapman & Scott Corporation are at your disposal. Consult our nearest representative when your designs are completed.

YOUR CONFIDENCE IS JUSTIFIED



100% MAN POWER

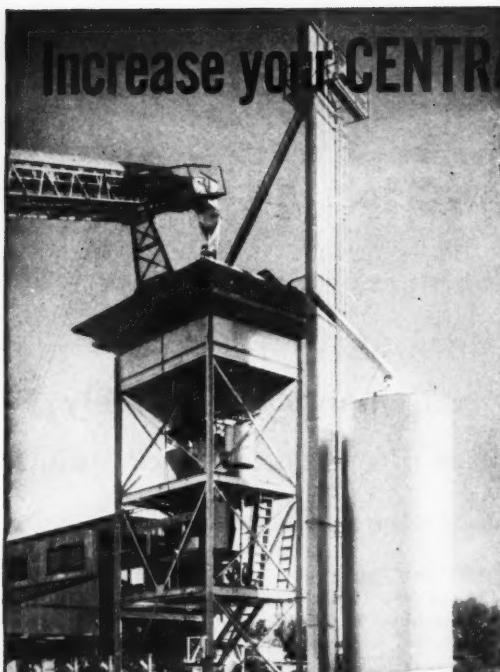
MERRITT - CHAPMAN & SCOTT CORP.

General Offices: 17 Battery Place, New York 4, N. Y.

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Increase your CENTRAL-MIX PLANT earnings

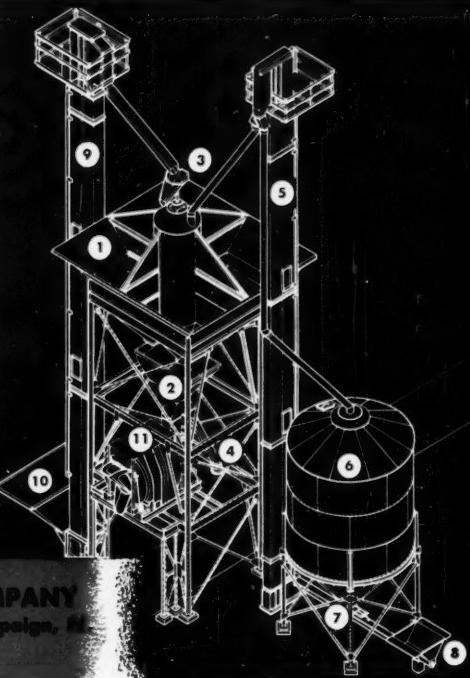


JOHNSON CENTRAL-MIX PLANT GIVES YOU ACCURATE CONTROL ... LOW-COST PRODUCTION:

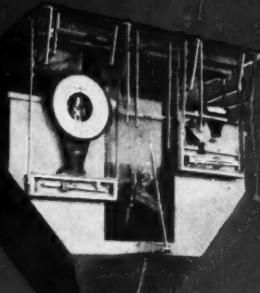
- 1 This 120 cu. yd. Step-by-Step Bin is arranged for 4 aggregate compartments of 25 cu. yds. each, and has a centrally-located cement tank of 110 bbls. capacity.
- 2 Concentric aggregate and cement batcher, of 2 cu. yd. capacity, handles all 4 aggregates and the cement. (See photo on opposite page.)
- 3 Pivoted distributor, mounted at top of bin, feeds aggregates into any of the 4 compartments.
- 4 Charging chute can load dry-batch mix direct into trucks.
- 5 Cement bucket elevator has capacity of 300 bbl. per hour.
- 6 Single-compartment storage silo holds 945 bbls. of cement.
- 7 Screw-type cement conveyor has approximately 300 bbl. per hour capacity.
- 8 Hopper for receiving bag cement.
- 9 Aggregate bucket elevator.
- 10 Hopper for receiving aggregates from trucks.
- 11 Heavy-duty, non-tilting Koehring mixer, model 56-S, for accurate quality and high-speed mixing.



C. S. JOHNSON COMPANY
(Koehring Subsidiary)



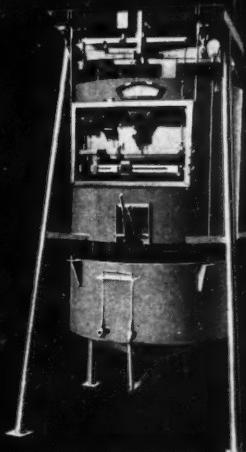
WITH JOHNSON



CONCENTRIC[®] BATCHER

Prevents Cement Loss

Exclusive Johnson Concentric Aggregate Cement Batcher gives you central cement feed. Wasteful cement "spilling" is prevented by concentric arrangement of aggregates around the central batcher discharge. Cement is also weighed on separate scale. Aggregates are weighed on individual beam scales, or accumulative dual scales. Results you get extremely accurate control and the most efficient use of materials . . . of top batching precision.



WATER BATCHERS

Improve Concrete Quality

Here's another handy auxiliary unit that can help increase your mix plant efficiency — Johnson Water Weigh-Batchers. Capacities: 120 gallons or 1,000 lbs. for batches up to 2 yards . . . and 240 gallons or 2,000 lbs. for batches up to 5 yards. Semi- and full-automatic types. They're fast-weighing . . . accuracy is not affected by changes in water temperatures.

CJ906

HIGH-SPEED, RUBBER-TIRED TRENCHMOBILE

Gives you 18.5 m.p.h. job-to-job speeds . . . digs 13.22 ft. per min., up to 4 ft. deep, 5" and 7½" wide . . . provides fast new method of handling off-street connections and other small trenching jobs. Ask your local Parsons distributor about this mobile, utility-size Model 80 Trenchmobile . . . or write us direct about the savings it offers on your work.



PARSONS

COMPANY
Newton, Iowa

LOW-COST, FULLY-POWERED MOTO-BUG

On your wheelbarrow work, there's no pushing . . . no pulling with Kwik-Mix fully-powered Moto-Bug. Travels 1½ to 4 m.p.h., forward and reverse. Has positive, direct steer; standard make 4 h. p. air-cooled gasoline engine; 10 cu. ft. bucket; controlled gravity dump. 1200 lb. capacity flat-bed platform, and operator riding step also available.



KWIK-MIX

COMPANY
Port Washington, Wis.

HEAVY-DUTY HALF-YARD KOEHRING 205

For top performance in the ½-yd. excavator class, check Koehring 205's independent traction, self-adjusting main clutches, simple, heavy-duty construction . . . quick convertibility from ½-yd. shovel or pull shovel to 7½-ton crane, clamshell, dragline, on crawlers or rubber-tires. See your Koehring distributor, or send for big 28-page catalog.



KOEHRING

COMPANY
Milwaukee, 10., Wis.



PORTER-CABLE *Speedmatic* SAW

BALANCED for easier handling!

BALANCED for truer sawing!

BALANCED for variety of cuts!

No other portable saw compares with the Speedmatic for fast, dependable sawing of heavy pieces; shoring, concrete forms, scaffolding. And the reason is **BALANCE** in the saw.

You can hold it in balanced position—all ready to make its cut—with only two fingers.

Its driving parts are so well balanced that the Speedmatic has no starting twist or jerk to contend with. Power is *smooth*.

The unusually broad shoe assures steady balance while sawing. Speedmatic does not tilt, veer or cramp.

The handle is on top, giving center-poised balance that permits easier guiding. And the cutting line is always visible—even when beveling. Balanced, compact design sees to that.



K-75: 2½" cut
K-89: 2¾" cut
BK-10: 3½" cut
BK-12: 4¾" cut

SEE the SPEEDMATIC TODAY!

It's balanced when you lift it . . . balanced when you hold it . . . balanced when you run it. At leading hardware, mill supply and lumber dealers. Write for complete information.



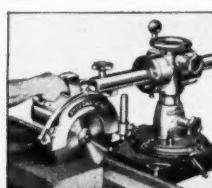
The Line of Balanced Design

FASTER multiple
sawing of identical
pieces!



RADIAL ARM

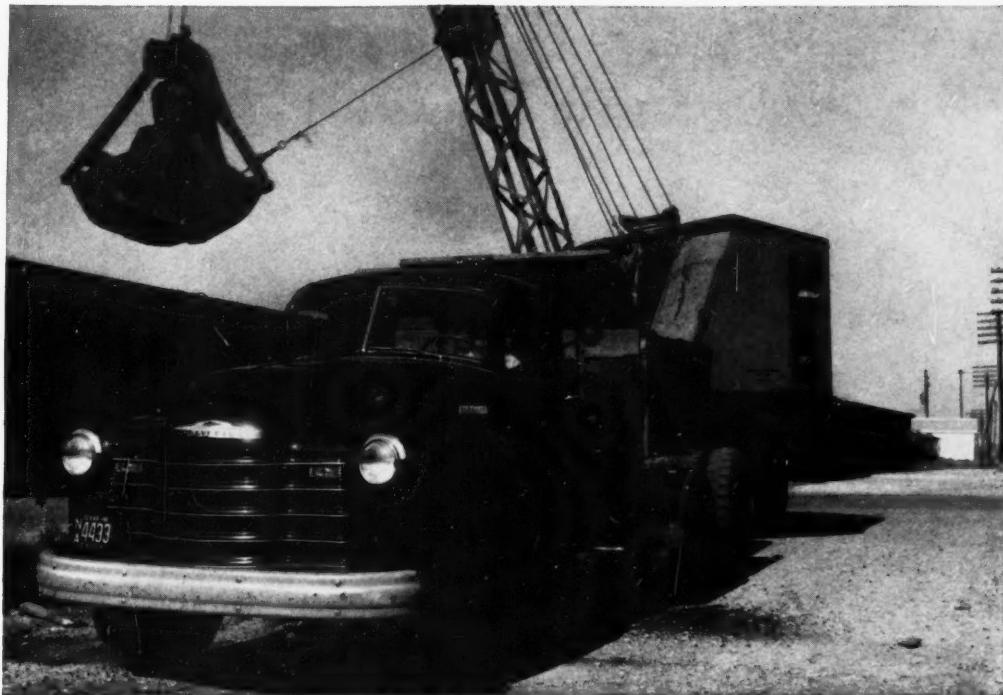
Simply attach your Speedmatic Portable Saw to the retractable Radial Arm and you have a Table Saw right on the site . . . ready for ripping long heavy pieces, cross-cutting, sawing bevels and angles. This Model ERA assembly in four sizes.



PORTER-CABLE Machine Co.

1750 No. Salina St., Syracuse, N. Y.

Manufacturers of Speedmatic & Guild
Electric Tools



Reliability plus Road-Ability . . .

CHEVROLET ADVANCE-DESIGN TRUCKS



Chevrolet Advance-Design

trucks have what it takes to deliver your goods swiftly, safely, surely—under the most adverse driving conditions. They thrive on rough going—perform reliably, efficiently, economically on America's most rugged roads. What's more, wise truck buyers recognize that only Chevrolet trucks give them sensational 3-WAY THRIFT—lower cost operation, lower cost up-keep and lowest list prices. This unsurpassed combination of thrift plus performance makes Chevrolet Advance-Design trucks top favorites across the nation . . . outselling the next two makes combined. For further details see your Chevrolet dealer without delay.

CHEVROLET MOTOR DIVISION, General Motors Corporation,
DETROIT 2, MICHIGAN

TOP-VOLUME PRODUCTION BRINGS YOU TOP-VALUE FEATURES!

Chevrolet's new 4-SPEED SYNCHRO-MESH TRANSMISSION offers quicker, quieter and easier operation. Double clutching is eliminated. Faster shifting maintains speed and momentum on grades. Available in series 3800 and heavier duty models.

Chevrolet's power-packed VALVE-IN-HEAD ENGINES provide improved durability and efficiency as well as world-famous economy!

Chevrolet trucks have the famous CAB THAT "BREATHES"! Outside air is drawn in and used air forced out! Heated in cold weather.

Chevrolet Advance-Design brings you the FLEXI-MOUNTED CAB, cushioned on rubber against road shocks, torsion and vibration.

Chevrolet's exclusive SPLINED REAR AXLE HUB CONNECTION adds greater strength and durability to heavy-duty models.

Uniweld, all-steel Cab Construction • Large, Durable, Fully-Adjustable Seat • All-Round Visibility with Rear-Corner Windows* • Heavier Springs • Super-Strength Frames • Full-Floating Hypoid Rear Axle in the 3600 Series and Heavier Duty Models • Double-Articulated Brake Shoe Linkage • Hydovac Power Brakes in Series 5000 and 6000 Models • Many Color Options.

*Heating and ventilating system and rear-corner windows with de luxe equipment optional at extra cost.

CHOOSE CHEVROLET TRUCKS FOR TRANSPORTATION UNLIMITED!

CREATIVE ENGINEERING made these P&H Added Values

- ✓ **MORE DIGGING POWER** per pound of weight.
- ✓ **TOUGHER CONSTRUCTION**—all welded of rolled alloy steels—no bolted joints.
- ✓ **TROUBLE-FREE TRAVEL**—true tractor type crawlers—the most efficient traction.
- ✓ **EASIER OPERATION**—less effort with direct-acting hydraulic control.
- ✓ —and many other features for which you pay extra or cannot get on other machines at any price.



*Why you're years ahead
with P&H*

Visitors to the P&H plants quickly understand the reasons. For here they see the vast facilities for research and engineering, the highly developed welding techniques, not equalled by any other excavator manufacturer—the creative skill and advanced methods which produce the world's most modern excavators. It all adds up to this:

More Digging Power at the Tooth Point

P&H gives you the industry's highest ratio of digging power to gross weight. You swing less deadweight—with better machine balance. This means a tremendous advantage in capacity for machine size—in bigger production—in lower operating costs. Yes, and in cutting repair bills, too.

Step into the cab of a P&H some day soon. Take the controls—crowd the dipper. Swing! Throw it into travel. Steer it! You'll understand why P&H owners are still years ahead of the field in performance and values.



Ask your P&H Dealer to show
you the new sound-color
movie, "Added Values."



See Your P&H Dealer!

P&H Excavators and Truck Cranes are more easily converted for the various types of service shown below—with hoist and digging drums on one shaft, the need for auxiliary shafts and gearing is eliminated. You also have a choice of gas, Diesel or electric power. Ask for literature on the size you need.



SHOVEL



DRAGLINE



BACKFILLER



CRAWLER CRANE



MAGNET CRANE



TRENCH HOE



PILE DRIVER



TRUCK CRANE

Who Doesn't Want Breakage Like This?



Here Is What Happens When You Use The **ROCKMASTER "16" Blasting System!**

HERE's the kind of rock-pile blasters dream about! Rock ready for the shovel . . . no boulders too big for the dipper . . . a clean face . . . no toe . . . no backbreak. Blasters get the kind of results they want in quarries, mines, and construction jobs—on the surface and underground—when they use the ROCKMASTER "16" Blasting System to "tailor" the blast to the job. In stripping, they can shoot the burden like this without degrading the coal!

The original Atlas ROCKMASTER development now includes sixteen millisecond delay detonators, each timed within thousandths of a second. Your job may call for two, three, even all sixteen. We help you select them to fit the particular job. Drill pattern and explosives are based on what you want to accomplish. This all adds up to greater control over breakage and throw than was ever before possible—plus, in many cases, important savings in drilling and dynamite.

In addition to its many other advantages, ROCKMASTER "16" cuts noise and vibration to a minimum. Bigger shots (generally more economical) can often be made in quarries, strip pits and construction jobs without complaints from neighbors. In underground workings, there is less danger of damaged or loosened roof supports—a real safety consideration.

Write today for booklet on the Atlas ROCKMASTER "16" Blasting System. It includes diagrams for typical loading in quarries, strip pits, mines, and many types of construction.

ROCKMASTER: Reg. U. S. Pat. Off.

ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY, Wilmington 99, Del. • Offices in principal cities • Cable Address—Atpowco



Rockmaster No.	Avg. Time of Each Delay from Zero (milli-seconds)
0 (zero)	0 (inst.)
1	8
2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550





Constructing Texaco Asphaltic Concrete paving on the First Street "tie-in" with U. S. Route 290.



Same type of pavement being laid on the Seventh Street "tie-in" with U. S. 290.

As a result of linking First and Seventh Streets with U. S. Route 290, traffic entering Austin from the east has been expedited considerably. General contractor was McKown & Sons of Austin. Asphalt contractor was J. M. Delinger, Inc. of Corpus Christi.



Completed Texaco Asphaltic Concrete pavement on Seventh Street. Traffic averages approximately 10,000 vehicles a day.

The Texas State Highway Department has long-range plans for eliminating traffic congestion at Austin, the state capital. The \$725,000 project pictured here is part of this over-all plan. It is designed to speed the flow of traffic entering or by-passing Austin from the east.

Here is another important state highway project, in which the pavement is resilient, heavy-duty Texaco Asphaltic Concrete. Thanks to its rugged, shock-absorbing, joint-free qualities, Texaco Asphaltic Concrete is delivering long service with low upkeep on many of America's most heavily traveled streets and highways.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils are refined from selected crudes. They provide the road builder with products to match every need—heavy-duty paving, low-cost surfacing or maintenance. For complete information on all types of asphalt construction, write for our booklets, "Road Building with Texaco Asphalt by the Pressure Distributor Method" and "Texaco Asphalt Paving—Plant-Mixed Types."



THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17
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TEXACO ASPHALT

PROMPT DELIVERY ON
CONSTRUCTION FASTENINGS
...ALL TYPES AND SIZES
PLAIN OR GALVANIZED



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On the Pacific Coast Bethlehem products are sold by

Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation



 <p>PYTHON CONCRETE FORM PANEL D.F.P.A. INSPECTED</p> <p>INSTRUCTIONS</p> <ol style="list-style-type: none"> (1) Push slide to set Rate of Pour concrete temperature in formwork, otherwise set Rate of Pour, vibrated concrete thickness, opposite Plywood thickness read stud spacing and wale spacing. Set maximum pressure and maximum tie spacing and lengths to fit stud spacing without cutting. Turn calculator over, and opposite wale size and plywood thickness read from top window and select size and spacing of material as above. (2) For smaller tie spacing or tie capacity use direct proportion to indicated size and spacing. 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left;">UNVIBRATED CONCRETE</th> <th colspan="2" style="text-align: left;">VIBRATED CONCRETE</th> </tr> <tr> <th>STUD SPACING INCHES</th> <th>WALE SPACING INCHES</th> <th>STUD SPACING INCHES</th> <th>WALE SPACING INCHES</th> </tr> </thead> <tbody> <tr> <td>1/2</td> <td>ALL 1 1/2 x 4</td> <td>1/2</td> <td>ALL 1 1/2 x 4</td> </tr> <tr> <td>9/16</td> <td>12 ALL 5/7 x 4</td> <td>9/16</td> <td>12 ALL 5/7 x 4</td> </tr> <tr> <td>5/8</td> <td>14 ALL 4 9/16 x 4</td> <td>5/8</td> <td>14 ALL 4 9/16 x 4</td> </tr> <tr> <td>11/16</td> <td>15 ALL 4 1/2 x 4</td> <td>11/16</td> <td>15 ALL 4 1/2 x 4</td> </tr> <tr> <td>3/4</td> <td>16 ALL 4 1/2 x 4</td> <td>3/4</td> <td>16 ALL 4 1/2 x 4</td> </tr> <tr> <td>7/8</td> <td>18 ALL 2 7/8 x 4</td> <td>7/8</td> <td>18 ALL 2 7/8 x 4</td> </tr> <tr> <td>1</td> <td>20 ALL 2 1/2 x 4</td> <td>1</td> <td>20 ALL 2 1/2 x 4</td> </tr> </tbody> </table>	UNVIBRATED CONCRETE		VIBRATED CONCRETE		STUD SPACING INCHES	WALE SPACING INCHES	STUD SPACING INCHES	WALE SPACING INCHES	1/2	ALL 1 1/2 x 4	1/2	ALL 1 1/2 x 4	9/16	12 ALL 5/7 x 4	9/16	12 ALL 5/7 x 4	5/8	14 ALL 4 9/16 x 4	5/8	14 ALL 4 9/16 x 4	11/16	15 ALL 4 1/2 x 4	11/16	15 ALL 4 1/2 x 4	3/4	16 ALL 4 1/2 x 4	3/4	16 ALL 4 1/2 x 4	7/8	18 ALL 2 7/8 x 4	7/8	18 ALL 2 7/8 x 4	1	20 ALL 2 1/2 x 4	1	20 ALL 2 1/2 x 4	<p>NOTES</p> <p>This calculator designed for internal vibrators only.</p> <p>Tie Loads designed for walls acting as three span continuous beams. For walls acting as simple beams, divide tie loads by 1.5. For walls acting as two span continuous beams (one tie between end ties), divide tie loads by 1.05.</p> <p>Stud tie loads are figured on assumption that plywood grain is perpendicular to studs.</p> <p>Studs & Wales designed for Structural Grade Lumber. For lower grades increase rate of pour by one foot per hour.</p> <p>For 2 x 6 studs, 3 x 6 wales are recommended.</p> <p>If studs and/or wales are used, never place between studs.</p> <p>PRICE \$1.00</p>
UNVIBRATED CONCRETE		VIBRATED CONCRETE																																				
STUD SPACING INCHES	WALE SPACING INCHES	STUD SPACING INCHES	WALE SPACING INCHES																																			
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1	20 ALL 2 1/2 x 4	1	20 ALL 2 1/2 x 4																																			

**Complete Construction Data
for Building
Concrete Forms of Plywood
Based on
Hourly Rate of Pour of Concrete**

EXAMPLES

- (1) Wall = 10' high, vibrated, at 50°, at 2 ft/m. Set 3 in. tie spacing, 12 in. wale spacing, 12 in. stud spacing. Opposite Plywood thickness read stud spacing and wale spacing. Set maximum pressure and maximum tie spacing and lengths to fit stud spacing without cutting. Turn calculator over, and opposite wale size and plywood thickness read from top window and select size and spacing of material as above.
- (2) Wall = 10' high, unvibrated, at 70°, at 6 ft/m. Set 3 in. tie spacing, 12 in. wale spacing, 12 in. stud spacing. Opposite Plywood thickness read stud spacing and wale spacing. Set maximum pressure and maximum tie spacing and lengths to fit stud spacing without cutting. Turn calculator over, and opposite wale size and plywood thickness read from top window and select size and spacing of material as above.
- (3) For smaller tie spacing or tie capacity use direct proportion to indicated size and spacing.

TO ARCHITECTS: Rate of pour should be shown on drawings when design is based on this calculator.

Engineers! Contractors! Save Time With This New Keely PlyForm Calculator

coupon to order on back cover



PlyForm Concrete Forms offer these advantages: PlyForm is durable, may be re-used again and again. Large panels go up quickly, are light and easy to handle, hold nails firmly, are easy to work with hand or power tools. PlyForm is strong, rigid, puncture-proof, water and mortar tight. The smooth, solid panel faces produce concrete surfaces that are free from joints and fins, smooth and easy to finish. Look for the "grade trademark".

Douglas Fir PLYWOOD

LARGE,
LIGHT,
STRONG

Real Wood Panels



DOUGLAS FIR PLYWOOD ASSOCIATION

Gentlemen: Please send me the new PlyForm slide-rule calculator. I enclose \$1.00 to cover cost.

Write the Douglas Fir Plywood Association office nearest you: Tacoma Building, Tacoma 2, Washington; 848 Daily News Building, Chicago 6; 1232 Shoreham Building, Washington 3, D. C.; 500 Fifth Ave., New York City 18.

Name.....

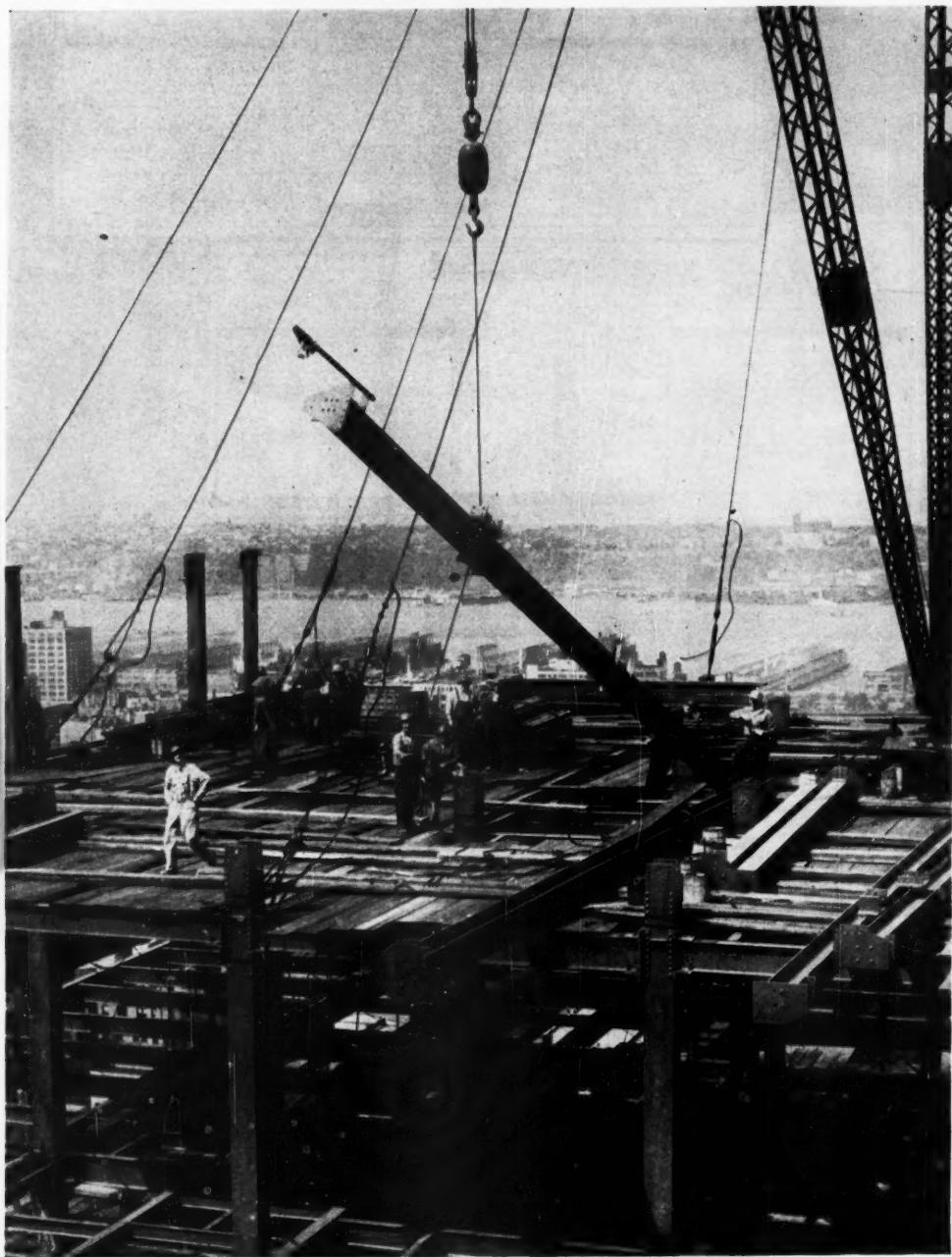
Firm.....

Address.....

City..... Zone..... State.....

Also please send me, at no cost, copies of "Concrete Forms of Douglas Fir Plywood" and "The New PlyForm".

THIS MONTH'S NEWS REEL



UP GOES OLD GLORY to mark the topping out of steelwork for new home office of The Mutual Life Insurance Co. of New York. Turner Construction Co. is general contractor on 25-story job, and steel, furnished and erected by Bethlehem Steel Co., rose at rate of more than two stories a week.

(Continued on page 105)



Double duty construction!

2-cars-in-one **Kaiser Traveler**

\$**2088***
only

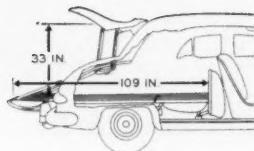
First car ever built to serve a double purpose! Kaiser Traveler is a big, beautiful six-passenger sedan. But in 10 seconds, it's on the job as a rugged cargo carrier! Load the nearly 10-foot-long hold with anything from blasting caps to air compressors...heavy-duty springs and shocks smooth out rough field locations. Here's what construction men say about Kaiser Traveler...the perfect answer to your two-car problem:

Mr. Hugh Morris, Construction Fleet Operator, Winner, South Dakota says
"Real cargo capacity! Holds a man-sized load of gear...then converts in 10 seconds to a king-sized pleasure car. Traveler is the most useful car I've ever owned."

Clyde L. Smalley, Jr., Building Contractor, Topeka, Kansas says
"Ideal moving equipment around on the job. Converts easily and quickly to a real family luxury sedan. Gives me the use of 'two cars' at upkeep cost of one car."

Kaiser Traveler...world's most useful car! ©1949 KAISER-FRAZER CORP., WILLOW RUN, MICH.

*Factory delivered and equipped. Federal tax paid. Transportation, local taxes (if any) add'l.

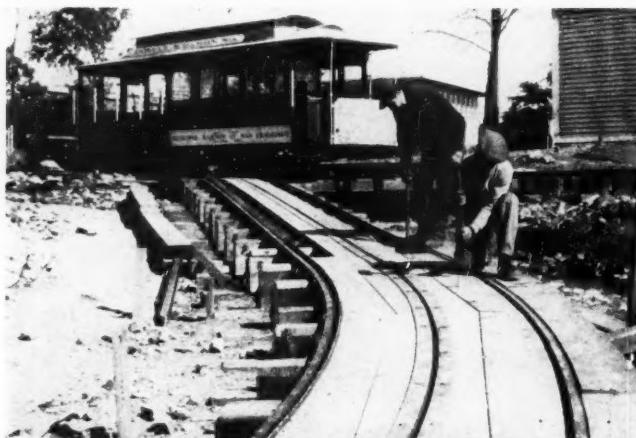


See your neighborly **Kaiser-Frazer Dealer** for a demonstration!

JOB ODDITIES



UNIQUE SOLUTION OF HOUSING PROBLEMS is reached at Vermillion, Ohio, where 6,000-gal. wine casks are converted into dwellings to form "Cask Villa."—Wide World Photo



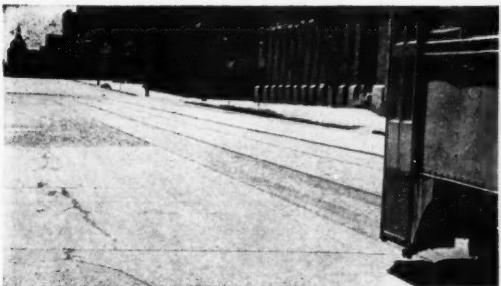
FAMOUS CABLE CAR MOVES EAST from San Francisco to climb shore of Lake Michigan at Chicago's Railroad Fair. Sacramento (Calif.) shops of Western Pacific Railroad Co. prefabricated the turntable, cable power unit and 600 ft. of 3½-ft.-gage track, which is installed at railroad's exhibit by Ellington Miller Co., Chicago contractors. Car is operated by endless ¾-in. wire-rope cable powered by 75-hp. electric motor.



"MINUTEMAPS," installed by Alabama Highway Dept., illustrate next section of highway. Cross-bar shows driver's location and beside it is travel time to destination. Speed limit is noted at top.



OLD STEEL BRIDGES SALVAGED to form New River crossing in Pulaski County, Va. Several short spans, after dismantling, are moved from various locations and assembled at Lowman's Ferry to form crossing 1,416 ft. long. New structure of several components is aptly named "E Pluribus Unum."—Authenticated News Photo



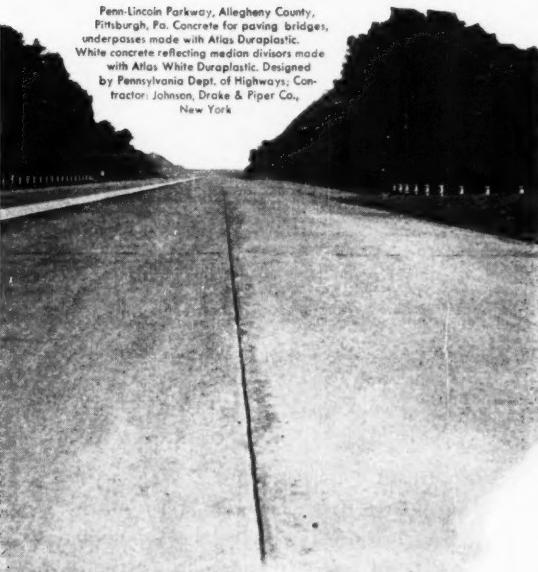
Ten Years Ago...

In August, 1939, this concrete test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, laid at the same time, was made with Atlas Duraplastic—the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown above as they appeared in July, 1949—convincing proof of the characteristic durability of Duraplastic concrete, of its high resistance to freezing-thawing weather and the scaling action of de-icing salts. Longitudinal structural crack shows some raveling. Note perfect transverse joint.



Today No doubt of durability... in concrete paving made with ATLAS DURAPLASTIC*



Penn-Lincoln Parkway, Allegheny County, Pittsburgh, Pa. Concrete for paving bridges, underpasses made with Atlas Duraplastic. White concrete reflecting median dividers made with Atlas White Duraplastic. Designed by Pennsylvania Dept. of Highways; Contractor: Johnson, Drake & Piper Co., New York

From its initial installation to the succeeding score upon score of successful paving installations over the past ten years, there is abundant evidence that Atlas Duraplastic cement fortifies concrete against freezing and thawing — renders it highly resistant to the scaling action of de-icing salts.

Clinching proof was revealed at the first session of the American Concrete Institute Convention held in New York in February, 1949. Devoted to "problems in concrete paving surface durability," the session recorded a significant unanimity of opinion that air-entrained concrete resists pavement scaling from salt treatment. A leading construction magazine commented, "...the use of entrained air, insofar as designers and contractors are concerned, would seem to admit of no more argument than the use of the water-cement ratio."

Experience shows Duraplastic (1) requires less mixing water for a given slump; (2) makes concrete more plastic, more cohesive, more uniform; (3) minimizes segregation and bleeding; (4) produces more workable concrete that dumps and screeds easily; (5) permits finishing closer to paver, and allows earlier protection for curing.

For pavement needs of today and tomorrow, Duraplastic offers better concrete at no extra cost. It provides the precise amount of air-entraining agent interground with the cement for satisfactory field performance. It complies with ASTM and Federal Specifications, sells at the same price as regular cement and calls for no unusual changes in procedure.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

*Duraplastic is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

CM-D-83

ATLAS DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

TRADE MARK REG.
U. S. P. T. O.



"THE THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network



SURE-GRIP—in earth-mover and grader sizes for maximum traction on drive wheels.



EARTH MOVER
ALL-WEATHER
for drawn vehicles and
general traction

HARD ROCK
LUG
for super-stamina
in all rock work

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GOOD YEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

How's Business?

THE CONSTRUCTION BUSINESS is mighty good right now. In fact, contract awards for the first nine months of 1949 are the greatest in history—some 20 percent ahead of last year's record volume. Indications point to a new record in contract totals for the year, around 19 billion dollars. Residential building is about the same as last year in number of units, but is slightly lower in dollar volume. After a poor start, highway awards have almost caught up with the 1948 record figure. Every other construction classification shows substantial gains over last year.

How about prospects? They look good, too. The current backlog of approved projects ready to go totals nearly 46 billion dollars, 8 percent ahead of the backlog last year at this time despite a reduction of 2½ billions through contract lettings. Thus, proposed work is piling up faster than contracts can be awarded. Non-federal capital and corporate security figures are now 27 and 16 percent respectively, ahead of last year—further indication of a healthy volume of work ahead.

How is the construction industry getting along at the moment? Pretty well, reports the Associated General Contractors of America after conducting a careful survey through its 5,300 contractor members. Business conditions have stabilized for the general contracting field. Costs have leveled off in general, though still slowly declining in some areas, to an average of 10 percent below the post-war peak.

The survey indicates ample construction capacity for more activity in all categories, despite considerable increase in the construction market since midyear. Contractor competition is getting back to pre-war normal, indicative of stabilized costs for some time. This competition, coupled with increased labor productivity and management efficiency, promise full value for every dollar invested in construction. Labor is plentiful except in the trowel trades in a few instances, and the material and equipment supply is adequate. In short, the survey shows construction is now operating on a normal, efficient basis.

Of course, there are spotty conditions contrary to the general situation. Some large federal projects are slowing down because of lack of appropriations. While nearly a billion dollars has already been appropriated by this Congress for construction, another billion dollars already passed by the Senate is currently tied up in House conferences. The next few weeks should see the end of this log jam.

Equipment sales are picking up after a lull earlier in the year. Part of the slow down was due to inventory adjustments, part was the result of contractors holding off until they actually needed the equipment. From now on, it is apparent that the construction machinery business will ride along on current needs and thus will be closely tied in with the rate of new contract awards. In the increased competition for equipment sales, we can look forward to constant improvements in design and operating efficiency. When a contractor had to take what he could get in construction equipment, there wasn't the urge on the part of manufacturers to better their products. Now, an old-model machine simply won't sell against something better and more efficient.

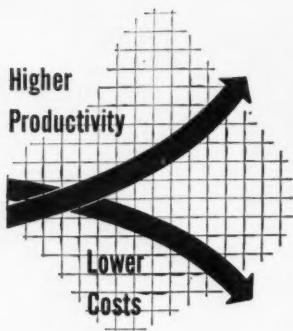
Yes, the construction business looks good, and promises to be good for a long time. There is plenty of business to go around, but just who gets it depends upon aggressive selling and even better operating performance on the part of both the contracting and equipment elements of the industry.

ON THE COVER

Luh Brothers, Inc. of Columbia, Ill., jump into an emergency Mississippi River levee job near Renault, Ill., with a husky earthmoving outfit. Here a Euclid 17-yd. bottom-dump wagon is being loaded by a Link-Belt Speeder K-595 dragline equipped with a Hendrix 4-yd. bucket.



Remember the Construction Section Meeting, National Safety Congress, Stevens Hotel, Chicago, Oct. 25-26.



Greater Production and Lower Costs

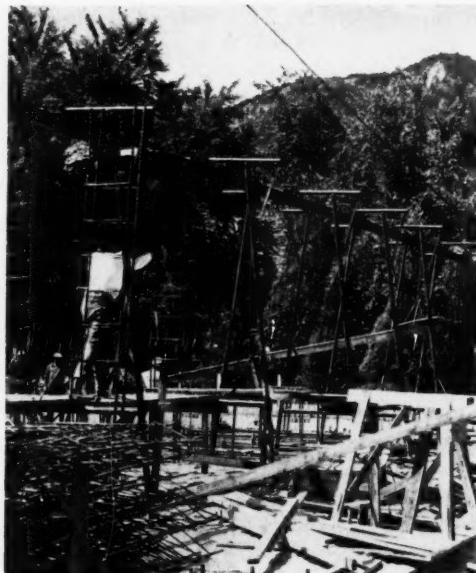
ALL INDUSTRY is facing the greatest of post-war problems — greater production and lower costs — to keep the nation's great industrial machine rolling by making possible continued buying at economical prices. To stress the problem, and to point out possible solutions, all McGraw-Hill publications are currently featuring articles on cost cutting and increased production — each designated by the accompanying symbol.

The principal editorial precept of *Construction Methods and Equipment* has always been presenting ideas for greater production and for cutting costs in construction operations. On this and the following pages — designated by the symbol—we concentrate numerous clever cost-cutting and production-increasing items that will further help the operations field of the construction industry to build better, faster, and cheaper.



1 . . . Monorail transfer starts at tower . . .

Concrete arrives at job in transit mixers, then is hoisted in $\frac{3}{4}$ -yd. bucket to monorail car through receiving hopper. Bucket is hoisted only when car is in receiving position, thus eliminating operator on receiving hopper.



2 . . . then moves along track . . .

Monorail track is supported on welded pipe A-frames set in sleeves on slab forms. Car pusher walks along runway carried on cross-struts on A-frames. Car with its $\frac{3}{4}$ -yd. load is moved from tower to chute by one man.

Monorail Replaces Buggy Runways ... And Cuts Concreting Costs

AN ENTERPRISING Colorado contractor has found a way to eliminate the costly bother of constantly shifting buggy runways in distributing concrete for building slabs. He simply mounts an overhead monorail on welded pipe frames carried on the forms, and

transfers concrete from a hoist tower to distribution chute by a hand-pushed bucket hanging from the monorail.

The arrangement is the brain child of Kris Nielsen, general manager for Thomas Bate & Son, Denver contractor. The accompanying

pictures show the rig set up on the new Chemistry Building Annex for the University of Colorado at Boulder, where the daily pour runs up to 140 cu. yd. Bert Wilson and William Olkjer are running the job for Bate. Ray Lind is construction engineer in charge for the University. Don Long of Denver took the pictures. This is Nielsen's second job with the monorail system. He declares it works so well that he never will go back to buggies and runways.



3 . . . toward rolling chute . . .

Carload of concrete rolls easily on monorail track. Intake end of chute is chained to rolling carriage, also riding monorail, for easy spotting. Chute can be spotted on either side of monorail, thus serving wide slab area with one track setup.



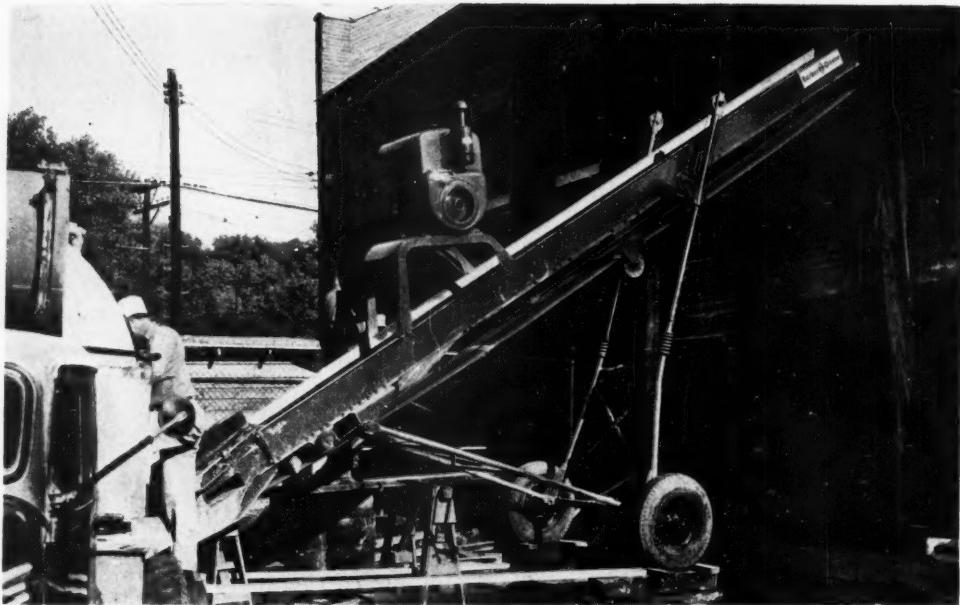
4 . . . for quick dumping . . .

Car pusher manipulates gate discharging concrete into chute. Chain sling holds gate in right position over chute head.



5 . . . to final disposition.

Chute is easily moved to desired spot for final placement. Occasional help with shovel keeps concrete flowing down flat-angle chute.



Concrete Rises to Second-Floor Pour; Expenses Drop to Cellar as...

Conveyor Cuts Concrete Handling Costs



EVER HAVE TO LIFT CONCRETE to an elevated pour? One that was so small it didn't warrant the expense of bringing in a crane or the time to set up a material elevator, yet was too large to handle in hods? One where the

work of building inclined ramps and delivering in buggies was prohibitive? Take a cost-cutting tip from R&R Construction Co., of Alton, Ill., who ran into the problem when they had to pour a second-floor slab in a local building

they were remodeling. They just backed a portable belt conveyor against the structure and—successfully and economically—raised a wet mix to the second story to make the pour.

The conveyor (an 18-in.x30-ft. Barber-Greene 362) operated at an angle of almost 30 deg. It received concrete direct from transit-mix trucks and delivered it 15 ft. higher up through a breach in the building's brick wall. At the head of the conveyor, an attached funnel directed the concrete into wheelbarrows that carried the mix to the forms. A tarpaulin kept what little concrete spillage there was from staining the face of the wall.

R&R's job also included a roof pour on a low adjacent building. So, when floor slab operations had to be temporarily discontinued half way through the pour, they switched to the roof. It was only a matter of minutes to wheel the conveyor into position to make the lift for the new pour. Later it was rolled back to the original location to finish the second floor slab.



CONVEYOR LIFTS concrete from trucks (left) and dumps it to wheelbarrows through wall breaching (right). Filling barrows caused frequent stopping and starting with full load of concrete on belt, but machine never stalled.

Ten Minutes to Load 2,000 Brick



DID YOU EVER think you'd see one man load 2,000 brick on a truck in 10 min., deliver it to a job, and unload it in 5 min.? It can be done—with a rig manufactured by the American Truck and Body Company, Martinsville, Va., and set up on a Dodge truck chassis. The accompanying photos show the slick, smooth operation.



1 DRIVER BACKS UP to stack of bricks, rolls empty brick body to rear end and tilts it down. He then backs truck until . . .



2 . . . BODY SLIDES in around stack. All bricks are stacked as usual except soldier course on bottom. Holding bar on ground behind soldier course . . .



3 . . . IS CLAMPED by heavy nuts and bolts on each side of truck body to hold load during tilting operation and over-the-road haul. Truck frame . . .



4 . . . IS BRACED to relieve strain on rear springs when load is brought up over rear end of chassis. Air bag at corner of body, incased with metal, is expanded by compressed air for extra grip on stack. Air comes from . . .



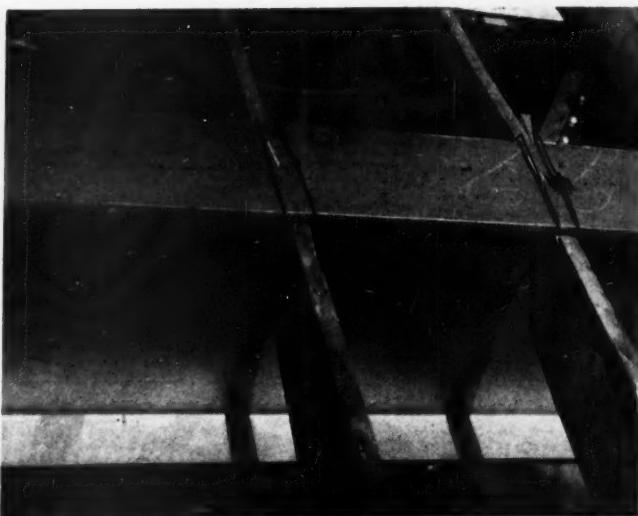
5 . . . HIGH PRESSURE TANKS on side of truck. Clamping bar is clearly visible and load is ready to roll. Unloading, reverse of this procedure, is done in 5 min. with surprisingly little breakage. And one man does the whole job.

THEY HAVE ONE of the slickest rolling platforms or floats you've ever seen for stripping bridge floor forms on the Roslyn Viaduct in Roslyn, Long Island, a part of the North Hempstead Turnpike. Getting together with his carpenter foreman, Vern Norton, superintendent for Hendrickson Bros. Inc. of Valley Stream, L. I., rigged up the float and also a hung floor form system which, together, have put the concreting operation into high gear.

The 4-lane viaduct span is 2,144 ft. long and 64 ft. wide, with the inner lanes and 4-ft. center mall carried directly above the piers, and the outer lanes cantilevered on north and south sides. I-beam stringers, set 5 ft. 7 in. from edge to edge, form five longitudinal bays within the pier supports and three more on each cantilevered side-lane, making a total of eleven bays measuring 64 ft. from side to side. Both forming and stripping promised to be bothersome since the earth slopes down to a narrow river under the viaduct changing the height of the underside of the bridge from 8 ft. at the ends to 85 ft. in the center.

A wire hanger in the shape of an inverted U was devised to hang over the steel stringers to support the deck. The ends of spruce stringers, 1x6 in., were inserted in the wire loops and plywood decking was nailed to them. Small strips

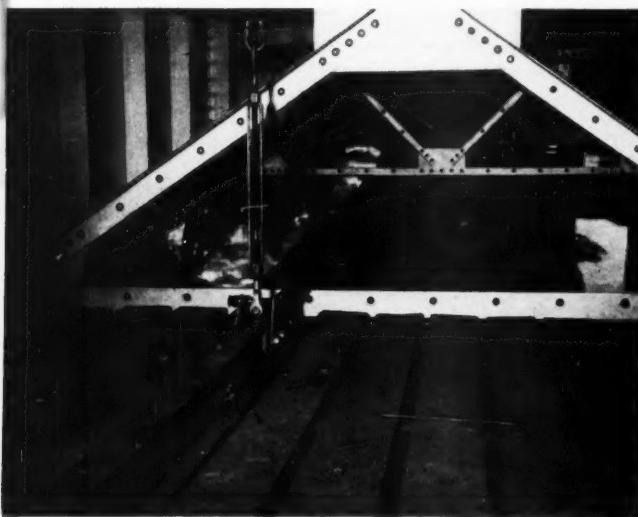
Slick Float for Stripping



1 A STRIP OF WIRE and a spot weld make a neat hanger for stringers supporting concrete deck on Roslyn Viaduct in Roslyn, L. I. Tapered board at right compensates for difference in heights between main girders and steel stringers. Nailing plate underneath prevents hanger from gouging into wood.

of flat steel stock were nailed to the wooden stringers and rested on the wire hanger to prevent it from gouging into the wood when the concrete was poured. Realizing

that a full piece of plywood would be hard to handle while stripping, they ripped them into one 1-ft. 7-in. and two 2-ft. widths for each bay. A 6 1/4-in. slab was poured



3 ...TROLLEY SYSTEM which was hung from overhead girders through 2-ft. turnbuckles, cables and chains. Six trolleys supported float at all times and as two more were engaged, two others were uncoupled and . . .



4 ... BROUGHT UP AHEAD. When chains or cables were used to allow passage of float under large girders...

Bridge Forms

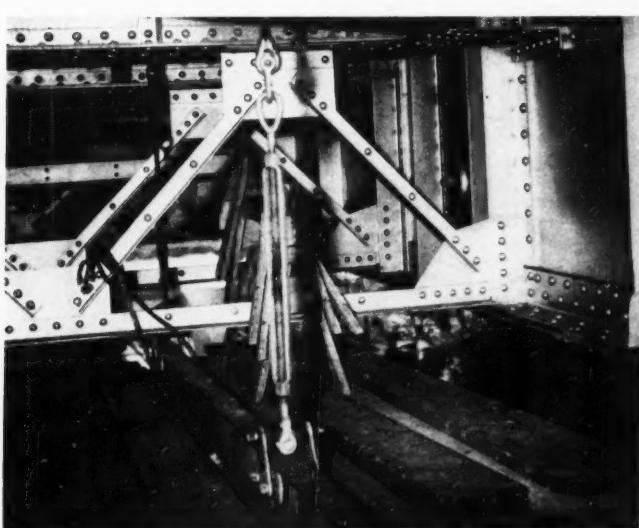


2 TWO OF THREE FLOATS rigged up for stripping deck—one for three cantilevered bays on either side, and other two combined to take care of five center pier-supported bays. Full plywood panels were ripped to 2-ft. widths or less for easy handling. I-beams on cross-timbers of float served as monorails for . . .

over a double layer of reinforcing and topped with 3-ply membrane waterproofing. This, in turn, was covered by a 3-in. concrete wearing surface in the four lanes with

the usual expansion joints longitudinally and between slabs.

Planked pipe scaffolds had been considered for stripping, but the cost in this instance was prohibitive, so they devised the rolling platforms pictured.



5 . . . HORSES AND SHORT PLANKS were used as temporary staging to reach forms. Roslyn Viaduct is part of North Hempstead Turnpike and cuts out bottleneck in town. Vern Norton is superintendent for Hendrickson Bros. Inc. of Valley Stream, L.I. Howard Pierson is resident engineer.

Two 20-ft. 8-in. I-beams were bolted across three 6x8-in. timbers with 10-ft. planks laid parallel to the I-beams, spiked to the end timbers and butted and spiked to the center timber. Then, using the platform I-beams as a monorail system, six rollers were inserted, connected through turnbuckles and/or chains to clamps which, in turn, were attached to the bridge steel. The turnbuckles adjusted the platform to the correct height, and an extra pair of rollers was ready to receive their share of the weight of the float. Rollers were spaced so that six of the eight were supporting the platform at all times, and as two more were engaged, two were left behind to be unclamped and brought up ahead. Small screw clamps on the ends of one of the I-beams prevented the end trolleys from sliding off unexpectedly. Three such floats were made up—one wide enough for the cantilevered outside lanes, and the others with total width for the inner pier-supported lanes.

When completed, the Roslyn viaduct will replace the narrow, twisting roads through the town, which now present a bottleneck problem, and will keep traffic moving rapidly on the North Hempstead Turnpike.

Hendrickson Bros. Inc., has the contract for the concrete work. Howard Pierson is resident engineer for the N. Y. State Department of Public Works.



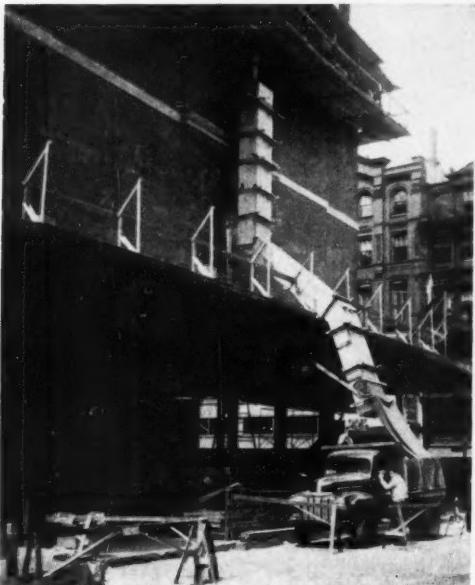
Magnesium Wall Forms

A NEW TYPE of wall form—made of magnesium—is being tested by the Symons Clamp and Manufacturing Co. of Chicago, who are taking advantage of the metal's desirable chemical and physical properties.

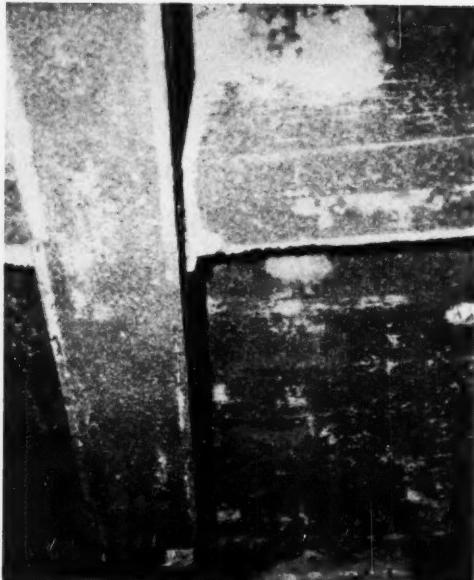
Light weight makes the forms easily portable, panels weighing less than 3 lb. per sq. ft. By using 3/16-in. plate a smooth-surface is obtained with no waves or dents to require rubbing or patching. Forms will not rust, react very little to temperature changes, and possess a high degree of resistance to corrosion by the alkalis in concrete.



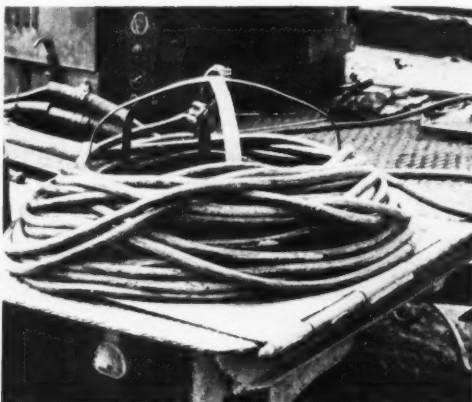
COST CUTTING TIPS



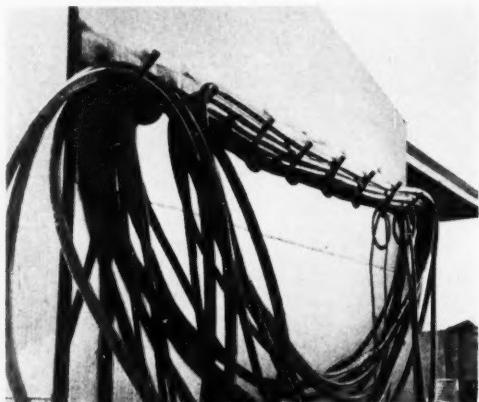
ON THE FIRST of five Jordan Marsh Co.'s department store in Boston, Thompson-Starrett Co. installed a rubbish chute despite wide marquee at second-floor level. Use of this chute relieves inside cages for hoisting material and transferring of items from floor to floor. Canvas flaps at each floor level keep dust and dirt inside chute.



SAME JOB has a trucking area in first floor, necessitating placing of 2-in. slabs of cork insulation on underside of second floor. Beam bottom, beam side and floor slab forms were made 2 in. greater all around, "gunk" applied, cork set in place and floor poured as usual. When stripped, cork was firmly in place, saving erection of scaffolds later and costly overhead application.



WELDING CABLE RACK has proved its usefulness on field repair jobs for General Petroleum Co., Wilmington, Calif. A $\frac{1}{4}$ -in. plate has been hinged to truck bed and bent strap irons welded, as shown, to hold loops of wire. If short length of cable is needed, it is unwound; for longer or full lengths, plate is tipped up and entire coil dropped to ground in neat bundle, ready to be strung out to working area.—Ira Carroll Photo.



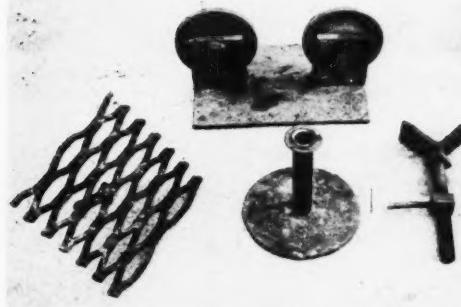
NEAT CABLE SLING was made by spot welding long piece of $\frac{3}{8}\times 4$ -in. sheet steel to side of portable generating shed in California contractor's yard. Scrap pieces of steel bar were then bent and welded to strip on 12-in. centers. Just enough line is unslung for each job. In this photo, butane hose is also coiled on outer hooks and kept off ground where hose and cables are most likely to be damaged.—Ira Carroll Photo.



TO BOLT COFFERDAM FRAMES for widening of Unionport Bridge over Westchester Creek in Bronx, New York, workman uses Ingersoll-Rand air-driven drill which goes through 12x12-timber like so much cheese. Star-drill can be inserted for drilling in stone. Senior & Palmer Inc. and Peter V. Connolly Co. are combined contractors.



BY WELDING DISCARDED PIECES of 3-in. drill pipe for base and sucker rods for cradle and handle, an ingenious workman rigged up this stand which tips with a minimum of effort and prevents waste of contents. Hooked end of steel bar is visible at top. This is attached to chain, one link of which is held in V-plate at rear of stand as locking device.—The Lincoln Electric Co. photo.



WELDING JACK, positioner and cutting table shown are also made from scrap parts and save time and money in welding and burning pipe lines in oil field construction work. Positioner at top allows pipe to be turned easily while welding and two or more can be used on extra long piping. V-cradle fits into base and large nut and bolt adjust pipe height. By inserting bolt into base, expanded



metal becomes cutting table for welder. Setup is shown being used by Burt Scherer of Buck's Welding Service, Long Beach, Calif. He is welding protective fencing along Richfield Oil Co. lease at Wilmington, Calif. Just another example of using scrap parts to hurry job and save money.—Ira Carroll Photo.

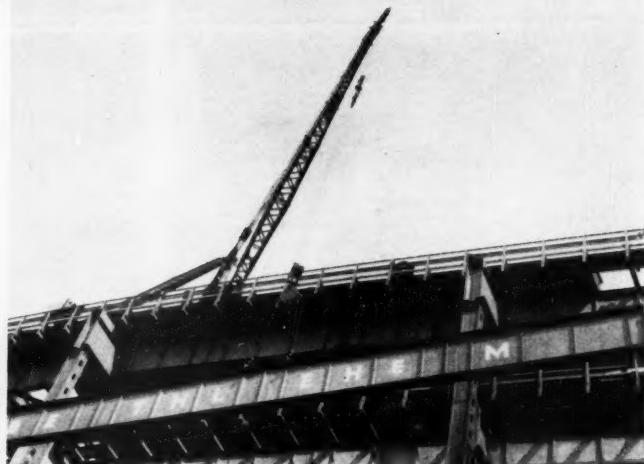


COST CUTTING TIPS (Continued)

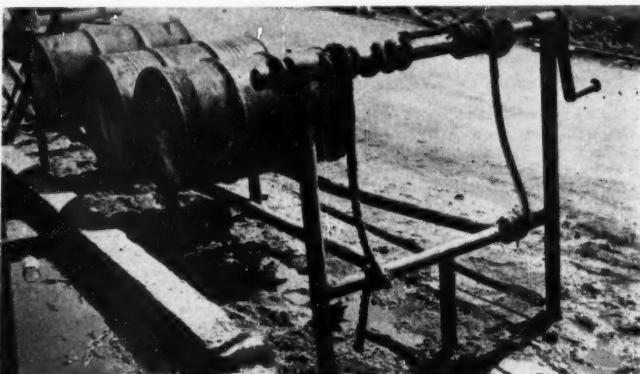


WHEN Merritt-Chapman & Scott Corp. was awarded contract for concrete roadways on double-deck Mystic River Bridge in Charlestown section of Boston, they had Bethlehem Steel Co.'s 125-ton erection derrick pick up this old P&H truck crane *en toto* and set it on a timber bed on open steelwork of upper level—150 ft. in

the air. Crane hoists lumber, forms, concrete, reinforcing steel, etc., for both decks, and saves installation of derricks. That same Bethlehem erection derrick was wisely set up on section of bridge directly over railroad tracks. Above, a 103-ft. 40-ton plate girder is hoisted directly from a flatcar, with no extra handling.



AN ORDINARY soda-fountain syrup dispenser is put to good use, not for flavoring, but for adding just the right amount of air-entraining admixture at Guy F. Atkinson Co. concrete plant at El Segundo, Calif. Operator works plunger by means of a wire run through pulleys. Plant furnishes concrete for company's project at Hyperion sewage disposal plant.—Ira Carroll Photo.



A FEW LENGTHS of discarded pipe were welded to form this fuel storage rack. By adding a handle on one end of shaft through uprights, and a shoulder on other end, one man can easily lift full barrel with little effort. Rope is unwound from shaft and laid on ground. Barrel is rolled over it and rope is brought up and attached to hooks. A few easy turns of crank and barrel is lifted and rolls down slanted runs to its position.—The Lincoln Electric Co. photo.



ARROW INDICATES bank of lights on Euclid elevating loader, one of five at work on Garrison Dam for Peter Kiewit & Morrison-Knudsen combine. Lights not only give go-ahead and stop signals by flashes, but each of four colored bulbs tells driver in what area to dump his material, saving shouts, misunderstanding and needless extra trips.

Utility Conduits Sneaked Into Busy Street Repaving Job



WALLS OF MANHOLES at end of Lexington Ave. line have been broken out and ten 4-in. conduit lines strung out to manholes at each intersection. High tension cables to be installed will reinforce present north-south lines on each avenue.



FOUR-FOOT LENGTHS of precast conduit are sloped up to 4-ft. average depth making deep cuts necessary only at manhole locations. Subway lines occasionally forced ducts up closer to road surface where overlapped 1/2-in. steel cover plates will prevent jackhammer break-throughs on future repairs.



ONE PRECAST MANHOLE set in place and another waiting for excavation to be pumped out. Inside measurements are 4 ft. 6 in. by 11 ft. 6 in. with 6-ft. headroom. Walls and precast roof are 7 in. thick. Lines will extend 8 blocks to 10th Ave. and 109,000 ft. of precast conduit will be used.

A CONTRACT WAS RECENTLY issued for removal of street-car tracks and complete resurfacing of New York City's famed 42nd Street. Since it was not feasible to stop traffic entirely, Mac Asphalt Construction Co. and their subcontractor, Andrew Gull Co., both of New York City, decided to work westward on the north half of the street and return eastward for the south half.

With the removal of the car tracks, the Consolidated Telegraph & Electrical Subways Co.'s engineers saw a chance to put in a much-needed conduit line for high tension cables to meet and reinforce existing Con-Edison lines running along the avenues. But it had to be done quickly—in between the tearing out of the tracks and the resurfacing.

Precast conduit and manholes were used as shown in the photos and the job is progressing without slowdowns or delays. Deep cuts are needed only at approaches to manholes and where there is a minimum of fill over the lines, $\frac{1}{2}$ -in. steel plates will prevent breakthrough by jackhammers on future repair work. Tully & DiNapoli Co., Long Island City, are excavating for and placing manholes.



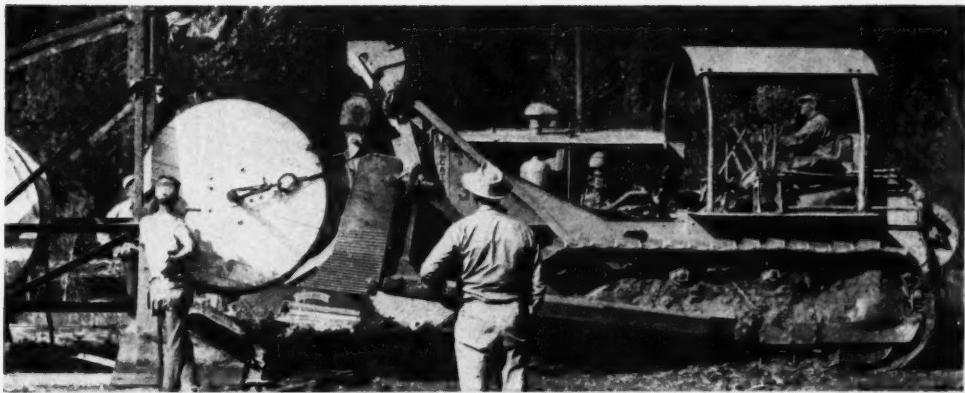
THREE SLEDS equipped with tension brakes permit one man to control paying out seven cables at same time, saving \$1,000 per mile in stringing transmission lines through Cascade Mountains. Ball-bearing mounted fairleads guide lines leaving spools.



Reel Tension Sleds Save Money On Transmission Line Stringing



LET'S GO! Tractor lines up three sleds in tandem, then drags whole works to new stringing station.



FULL REELS are rolled on to sled track by special bulldozer blade. Empty spools are rolled off by hand.

REEL SLEDS, mounted on tubular skids and equipped with tension brakes, are credited with saving \$1,000 per mile in stringing 60 mi. of 230-kv. transmission lines across the Cascade Mountains in Washington for the Bonneville Power Administration. Parker-Schram Co., Portland, Ore., contractor on the project, leased one single-reel and two triple-reel sleds from Stemmer Bros., Leavenworth, Wash., designers and builders of the rigs. Stringing the first 15.8-mi. stretch through the worst mountain territory was completed in 15 days.

The sleds consist of welded steel framework mounted on tubular skids. On the three-reel rigs the reels ride in tandem. Required tension on each reel is maintained by a manually-controlled friction brake. Overhead ball-bearing fair-

leads guide the cable as it is drawn out.

Full reels are rolled on to a track on the sled by a bulldozer, and the reels are lifted into position by a hydraulic lift. Empty spools are rolled off the sled by hand. The tractor drags all three sleds in tandem to new stations.

J. E. Stone, general superintendent of project, says the reel tension sled saves 12 men on each reel set. Now, one reel-tender can handle all seven stringing lines from three sleds. "Lagging crews are also reduced," declares Stone, "since greatly improved control of tension keeps cables off the ground."

Begun June 11, 1948, but suspended from December through March because of snow, completion of the power line project is sched-



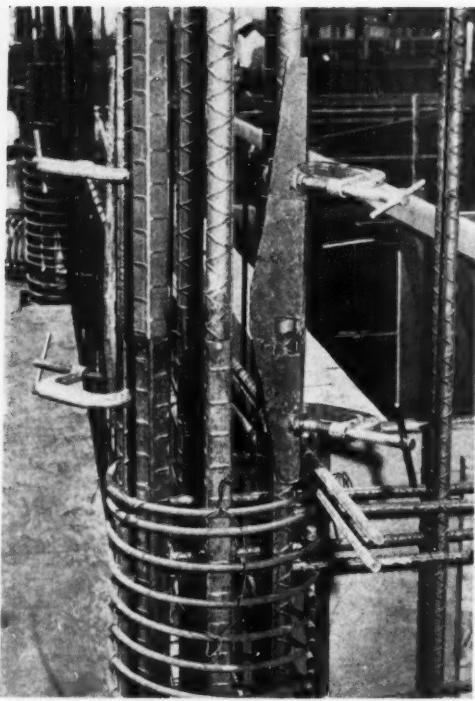
REEL IS FASTENED to tension brake through crank strap bolted to spool shell. Hand wheel adjusts tension on reel brake.

uled for October 1949. William Shirran is project manager for Bonneville and Don Hazen is general foreman in charge of wire-stringing for Parker-Schram.

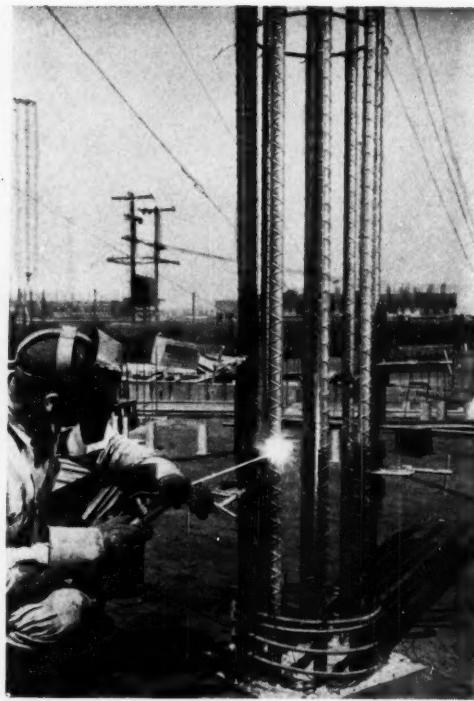
Year-'Round Performer

INSTEAD OF locking his Moto-Crane in the garage with the advent of winter, one enterprising contractor took it indoors, lubricated and winterized it, removed the hook and hoist lines and fitted it up with a V-plow for snow removal work. The Lorain rig is thus a year-round performer and with the tremendous tractive effort of its 6-wheel drive, it can really push a lot of snow. Its rubber-tire mobility gets it to the needed area quickly, and highway speeds up to 30 mph. are just about right for efficient operation.

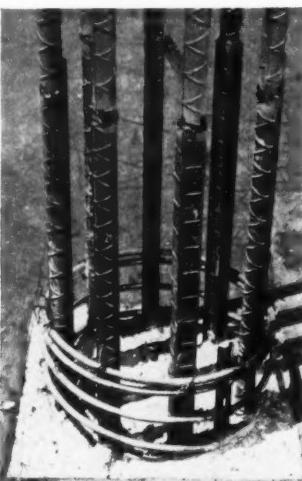




1 BUTT-WELDING of column reinforcing rods saves time and money on Park La-Brea Housing Project in Los Angeles. Company-designed clamps hold two new rods to 1½-ft. dowel of preceding rods for single pass needed. Slipping due to compression is eliminated, and saving of 65 tons of steel was made on each building. Next, a . . .



2 . . . SMALL SPREADER RING was wired to hold all six rods properly. Weight of bars was sufficient to hold them for welding, doing away with need of overlapped weld and larger forms. To insure proper seat, rods were machine cut and burrs filed off before welding. Then . . .



3 . . . A COMPRESSION SPIRAL, with small channel spacer, was dropped over rods on each column and wired as needed. Overlap method demands contact surface length 40 times diameter. With butt-weld, typical forms were used up through building.

Butt-Welding Column Bars Save Time and Money

By J. B. McCORMICK, Los Angeles District Manager, The Lincoln Electric Co.

BY USING a welded butt-joint on reinforcing bars instead of the conventional lap-joint, a saving of 65 tons of steel was made on each of the buildings in the Park La-Brea Housing Project of the Metropolitan Life Insurance Co., in Los Angeles. As a result, typical column forms were usable all the way up through the eighteen 13-story buildings, a factor which saved time and money.

Developed by the Anthony C. Meehlis Co., supplier and erector of column reinforcing on the job, the method did away with the

overlap of 40 times the diameter usually called for in this type of construction. Eight rods run up through the columns tapering from 1½ in. on lower floors to 1¼ in. and 1⅓ in. on upper stories. Congestion of steel due to overlaps would have necessitated the use of larger forms, especially on lower floors.

The elimination of the overlap called for cutting the bars square and filing off all burrs, thus providing a flush fit for the direct compressive surface. The first-floor set of reinforcing bars was an-



PROJECT, which includes eighteen 13-story buildings and seven two-story garages, is being built for Metropolitan Life Insurance Co. and is one of largest building jobs on west coast. Starrett Brothers and Eken, Inc. are contractors.

chored to a 24x24x1½-in. base plate embedded in concrete. For each successive lift, two of the eight bars were clamped to the 1-ft. 6-in. dowel end of the preceding rods, as illustrated. The hole in this clamp was placed directly over the joint to be butt-welded and a single pass around secured it sufficiently. A ¼-in. steel ring was wired to the two rods and held the other six for welding in turn. Only 5 min. work was needed for each column.

Compression Spirals Used

The rods are of high carbon, hard grade steel and all welding was done with LH-70 electrodes, a low-hydrogen, lime-ferritic type manufactured by The Lincoln Electric Co., of Cleveland, Ohio. When rod welding was completed, compression spirals, with small channels for proper spacing, were dropped over the column reinforcing to hold the bars properly in place during the concrete pour. These spirals extend slightly above

the next floor level. Bars welded by this method are probably stronger than overlapped bars, for there is no chance of slipping under compression. Starrett Bros. & Eken, Inc., are contractors for the job.

CASH FOR YOUR JOB PHOTOGRAPHS

EACH MONTH *Construction Methods and Equipment* purchases several photographs submitted by our readers. Minimum payment for accepted pictures is \$5. Extra bonuses for outstanding shots may bring you \$10, \$15 or \$25. Good, clear glossy prints are desired of job operations, clever applications of equipment, and cost-cutting tips.

Address the Photo Editor, *Construction Methods and Equipment*, 330 W. 42nd St., New York 18, N.Y.

CUTS AND FILLS

CONSTRUCTION ACCIDENTS cost more than three-quarters of a billion dollars in 1948, according to the forward of the Third Edition, Manual of Accident Prevention in Construction, compiled by the A.G.C. Most of that staggering cost is sheer waste, for accidents can be prevented.

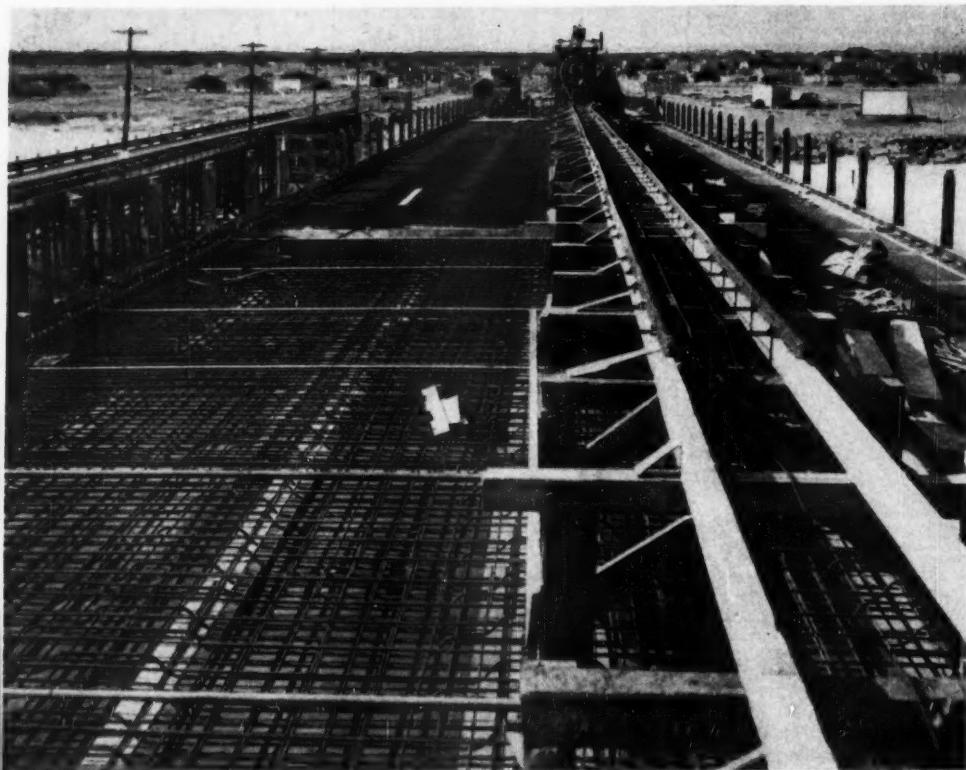
JUST THINK what that kind of money would buy in construction—700 mi. of road, or several big flood control projects, or 1,500 grade separation structures, or 750 big schools fully equipped or even several hundred hospitals to take care of injured construction workers.

INCIDENTALLY, that newly-revised A.G.C. Safety Manual is a corker. It's chock full of practical, common-sense ideas and helps on construction safety—all brought up to date. New sections, drawings and photographs have been added, and it's particularly designed with busy foremen and superintendents in mind.

IF YOU'RE A construction operator, you shouldn't be without this manual. It costs only \$3, postpaid; it may save you several thousand times that trifling cost. You can get it from Associated General Contractors of America, Munsey Bldg., Washington 4, D. C.

AMERICAN ROAD BUILDERS ASSOCIATION will hold its 1950 annual meeting at Cincinnati next March 6th to 9th—without a Road Show. In fact, there's no Road Show in sight at this time, and there won't be until the manufacturers recover from the expense of the gigantic spectacle staged at Chicago last year.

IS THE DEMAND for houses falling off? Some economists think so, but here's what happened on Long Island (N.Y.) recently. A builder proposed to erect 151 King Ranch type homes (\$13,500) on a big tract, built a model home, and opened up a sales office one Sunday morning. About 25,000 persons flocked over the site in one day, and by nightfall he had sold the entire project in advance, each purchaser paying from \$500 to \$2,700 cash deposit.



CONCRETE FROM REX MIXER is carried in side-end-dump mine car on bridged narrow-gage tracks. Hoist engine pulls and empties cars through snatch-block and anchor setup. As pouring proceeds, sections of bridging and tracks are removed to left-hand lane and

sent back in mine car as second pour is made. Cables run over crosswires strung from handrail posts, to prevent sagging into fresh pour. Concrete conduits run through curbs to carry power to bascule control machinery.

Clever Car Distributes Bridge Concrete



THE NEW TOLL BRIDGE connecting Salisbury, Mass., with Hampton Beach, N. H. was opened sooner than expected to alleviate the tremendous amount of summer beach traffic at the resort. One of the reasons for this was the quick, novel pouring arrangement set up by Berke-Moore Co., Inc., of Boston, Mass., who came on the job only last April.

The new bridge runs alongside an old plank-deck structure now in use with an old-fashioned cable-supported bascule in the center. General layout includes six 94-ft. riveted girder spans running from each shore to a 65-ft. center bascule section, totaling 1,193 ft. from north to south abutments. The bascule deck is open steel grillwork.

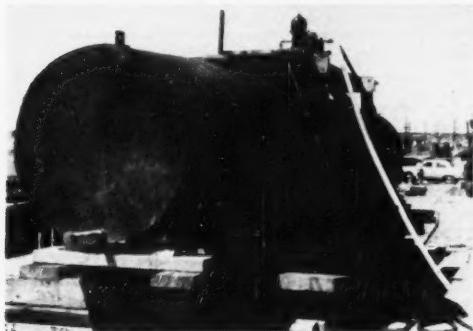
Coming in on the heels of the cofferdam and substructure work of T. Stuart & Sons, Watertown, Mass., the Phoenix Bridge Co., Phoenixville, Pa., fabricated and erected the 735 tons of steel but subtlety placing of 3,000 sq. yd. of concrete deck and walkway to the Berke-Moore Co., along with erection of a control house at the bascule section.

A Johnson batch plant with double compartments was set up at the south approach, aggregates were hauled 50 mi. from the Manchester Sand and Gravel Co. plant, and a 1-yd. Rex paver, double-drum hoisting engine, narrow-gage tracks and mine car were set up at the north approach. The tracks were placed on timber bridging and

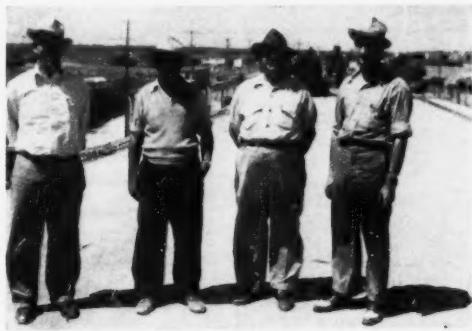
ran from the delivery end of the mixer out to the end of the third bay. One bag of natural cement was admixed with six bags of Lehigh for the pours. Aggregates were fed into the mixer, the hoist pulled the mine car out along the tracks through a snatch-block and anchor system and the car was dumped out forward, to the right, and to the left in successive passes. As often as necessary, sections of bridging and tracks were pulled out and set up in the adjoining lane. As the second lane pour proceeded, sections were sent back in the car for transfer to the opposite end of the bridge. The pull cables were supported by crosswires strung from handrail posts on opposite sides to keep them from sag-



THE NEW AND OLD Hampton Harbor bascule-center bridges connecting Hampton Beach, N. H., and Salisbury, Mass. Here steel erection is starting from south end on one dry and five wet piers.



TWO LARGE 3,000-GAL. TANKS are filled in wee hours of morning for concrete work. Location at end of supply line for crowded beach resort resulted in little or no water during day.



TEAMWORK for swift completion of bridge: Roger Downing, resident engineer; John DeCosta, Berke-Moore concrete foreman; S. N. Buckwalter and J. F. Kinter, paymaster and superintendent for Phoenix Bridge Co.

ging into the fresh pour. Steel 1-in. rods every 10 ft. served as screeding bars and were removed before the concrete set up. The 5-ft. 9-in. walkway on the east side and the 26-ft. roadway were poured to a depth of 7 in. Curbings, which were poured later, contain concrete conduit carrying power to bascule machinery.

In this manner, the first three bays were poured on the north end. The outfit was then moved to the south end and the operation repeated there. Then to the north end again, (set up on the previous pour) and the remaining three sections poured and finally the repeat on the south end once more. While the rigs were set up and working on alternate ends, forms on either side were stripped and re-used without the necessity of transporting them across the river.

An unexpected problem arose with the lack of water supply. From the start of the concreting in April to the 4th of July when oper-

ations were in full swing, the population of the beach resort rose from the usual 500 year-round residents to several thousand. Since the bridge job was located on the extreme end of the supply line, no water, or just a trickle, was available for the job during the day.

Two 3,000-gal. supply tanks were brought in and equipped with small pumps. From 2 a.m. to 4 a.m. each day, while the vacationists slept, the tanks were filled for the next day's operations. (Firemen, incidentally, will have a 14-in. salt water line running from the ocean through the town in a few months to alleviate their concern about lack of water for fire-fighting.)

As soon as the complicated reinforced-concrete control center is erected to house the bascule machinery, the A. J. Paquette Co. of Meredith, N. H., will have completed their contract for the approaches and will begin to dismantle the old bridge.

The bridge was designed by Parsons, Klapp, Brinckerhoff & Douglas, New York City, for the New Hampshire State Highway Department. Frederick E. Everett is commissioner; D. H. Dickinson, chief engineer, and Roger Downing, resident engineer. Berke-Moore's concrete foreman is John DeCosta, under J. F. Kinter, erection superintendent for Phoenix Bridge Co.

Cash for Your Job Photos Every Month—See page 73

SAFE CONSTRUCTION PROCEDURES

ONE OF THE BEST construction safety manuals we have ever seen is that compiled by the Construction Division of the Engineering Dept., E. I. du Pont de Nemours & Co. Inc., Wilmington, Del. While designed primarily for guidance of Du Pont contractors and subcontractors, it is an excellent manual of safety instruction applying to all types of construction. It is a compilation of safe practices advocated by Du Pont since 1932, published in booklet form first in 1942, and revised periodically since then. An introductory explanation to the manual states:

"The material covered in this manual has been purposely presented in abbreviated form so as to get broader coverage of more valuable practices in a simple, positive and practical manner.

"Inasmuch as we of the Du Pont Company rec-

ognize the many hazards of our employment and since we desire to conform to recognized safety regulations and since further, we spend much effort and money in a detailed program for the welfare of our fellow workmen, we must insist that all contractors recognize this attitude and comply with the Safety Regulations to the best of their ability."

Because this manual is so direct, simple and sound, we take pleasure in publishing it in *Construction Methods and Equipment* in three installments, the first of which appears herewith. The editors offer their sincere thanks to the Du Pont Construction Division and to Joseph A. DeLuca, its safety director, for permission to reproduce the material and for their willing cooperation in making this series possible.

1... Men, Materials and Equipment

General Provisions

EQUIPMENT — All contractors shall themselves provide adequate equipment for the SAFE performance of their work. This equipment shall conform to reasonable standards where the Safety Department specifically advises. Du Pont equipment may be borrowed only upon written permission from a representative of the management.

DEPARTMENT — Contractor's men must never start working in an area or building without first having received necessary permission, instruction, and identification.

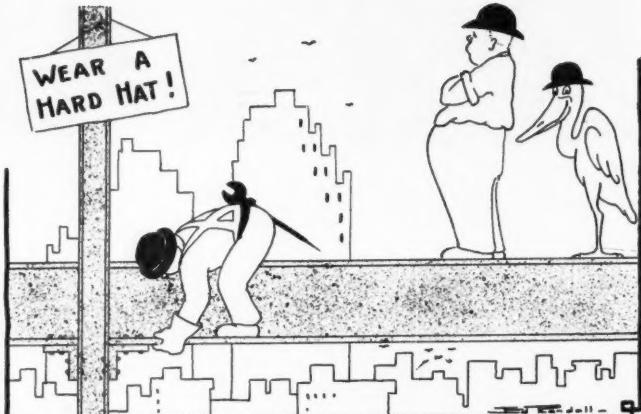
It will be absolutely necessary for all contractors' men to post areas where "Overhead Work" is being done.

The use of intoxicants on the project, in any degree, will positively not be tolerated.

Contractor's employees shall be kept conscious of fire hazards and shall observe due precaution in areas where smoking is permitted.

All plant traffic regulations shall be observed to the letter. Further information will be supplied on request by the Safety Office.

Extreme care shall be exercised in the use of all open flame equipment, particularly fire pots.



SET THE EXAMPLE.

Safety Regulations for the Man ... What to Protect and What to Do

ABDOMEN — Wear "kick - back apron" while ripping lumber on power saws. Be conscious of hernia and other abdominal injuries when lifting and pushing. Use the thigh when lifting objects, NOT the back muscles.

ARMS — Protect exposed skin surfaces by keeping the shirt sleeves

rolled down when conditions warrant it. Lathe and similar machine operators should roll up sleeves when conditions permit.

CHEST — (external) There are some mechanical operations such as black-smithing, some sheet metal and carpentry operations which are more safely done while wearing a tough canvas apron. Don't



IF YOU WANT SAFETY you must say so, often and loud, with adequate obvious backing in presence of top supervision, as in case of this Du Pont construction unit. Plentiful supply of hard hats looks much better on individual heads than in a store-room bin.

carry sharp tool points in shirts or pockets. Look out for flying spalls and materials on all jobs.

EYES—Wear goggles when doing:

ACID WORK — Acid Goggles: When cutting acid lines, washing walls, fluxing metals or handling acid under any conditions.

CHIPPING WORK—Chipping Goggles: When caulking, yarning, grinding, drilling, picking, sawing, chipping, busting, some backing-up of rivets, etc. Dust goggles same as chipping goggles for refuse handling, sweeping, scraping, brushing, and some forms of painting (spray painting permits use of plastic eye and face shield).

WELDING GOGGLES — For gas welding—helpers require them also.

WELDER'S MASK—When electric welding. Similar masks with uncolored glass are required by lead burners when work is wet and sputtering. Electric welders are required to use opaque screens or curtains as conditions require. (Cover that arc.) Keep your hands clean and out of your eyes. Immediately flood eyes with clean water when you have reason to know the foreign matter is acid, plant dust, or scale. (Go to the First Aid Station for any eye trouble.)

FACE AND NECK—Use nitro-

meter-type mask or plastic shields for guarding against spraying liquids of corrosive nature or other flying particles. Use an all-service mask to protect the face under gaseous or toxic fume exposure. Clean cheese cloth and skin greases applied to exposed parts are valuable in acid vapors, creosote, and unknown dusts. Particularly in warm weather, use them.

FEET AND TOES—Good safety shoes should be worn at all times. Boots and rubbers—in wet weather and on jobs subjected to acid liquids, sludges, etc.

FINGERS AND HANDS—Wear horse-hide, or chrome leather

gloves on all types of work according to their respective suitability. Canvas and rubber dipped canvas gloves are for pipe coverers, creosote workers and some special jobs. 10,000-v. rubber gloves, with leather protectors and carrying bag, are to be used on all power lines and electrical work over 110 v.; otherwise check Safety Section. These should be inspected as used and dielectrically tested every three months. "Sailor Palms" are to be used for sewing fabrics, as in pipe covering.

Extension tongs or fixtures are advisable for driving wedges, stakes, rods, etc., or while holding star drills, bull points, etc., if the holder is not operating the hammer or maul. Hold stakes with the claw and neck of your hammer.

Tape (adhesive or friction) is useful on fingers and wrists of bricklayers.

Creams and greases are required on creosote, contaminated materials and on some Special Jobs (if not sure, ASK).

LEGS—Wear good overalls or pants at all times. Have no loose, torn or dragging fabric threatening you at any time. Tie pant legs with twine when it seems advisable.

RESPIRATORY—(Nose and Lungs)

Dust mask respirator when



BE EVER MINDFUL OF EYES, FINGERS AND TOES

in extremely dusty atmosphere, sweeping, breaking concrete, and all prolonged or continuous exposures to any dusts.

Smoke and fume mask respirators have calcium carbonate and carbon filters and are to be used only on light and temporary exposure to non-toxic fumes.

All-service masks are for semi-toxic fumes and resemble the army type masks for use in the open room, outdoors, but not in tanks or small enclosures. (Be sure you have the right cannister for the gas or fume involved, i.e., ammonia, nitric oxide, hydrogen sulfide, chlorine, etc. Check Safety Section).

Air Mask to be supplied with filtered plant air, (not portable air compressors) not over 40 lb. at source and controlled by valve near face piece. To be used in enclosures or tanks where there may

be oxygen deficiency, or where fumes are uncertain. (Check Safety Section.)

SCALP—Wear common hats or caps at all times as protection against acids, collision with protruding objects, etc. But hard hats, (skull guards) are required when working under any men, or materials which are likely to fall from any height. See your store-house for supply.

SHOULDERS AND KNEES—Use a pad of hair felt, burlap, etc., on shoulders for carrying mortar, plaster, pipes, steel, or heavy timbers—especially if prolonged. Continued work on knees (as in cement finishing) also calls for pads.

Use carrying straps or timber hooks when carrying plate glass, sheet metal or ties, logs, poles respectively.

THIGH AND ARMS—All pointed tools normally carried in pockets are better carried in a canvas or leather tool sheath hung from the belt. Suggested for electricians, finishers, pipe coverers, riggers, etc.

WRISTS—Gauntlet gloves and tapes. Acid work—long gauntlet gum gloves. Labor or mechanical work—gauntlet horse-hide or chrome leather gloves.

SAFETY BELTS—Always inspect before use. (See your store-house for supply.) They are to be used on roof slopes over 15 deg. in pitch, in high winds or high elevations, towers, stacks, platforms, and in tanks or similar vessels or enclosures. (Have "lookout" man for tank work.)

Always Tie Belt Adequately With Line Short as Possible.

Safety Regulations for Materials



A CLEAN JOB IS A SAFE JOB

The handling of materials is in itself a large accident prevention field. Work carefully, place separator blocks under material or equipment when temporarily storing or transporting them. Don't be caught between the tail board of a truck and some other object or building. Don't let heavy materials throw you off balance while handling.

ACIDS—Tying in pipelines or curving tank linings, washing brick and tile. Use acid coat, hood, boots, rubber gloves; post signs, and rope off area. To wash brick, use goggles, rubber gloves and rubber overshoes. Oxide cleaners and soldering fluxes in sheet metal

work call for the use of goggles and gloves where at all possible.

BRICK AND TILE—Do not stand on loose brick or tile for any reason. Don't overload a scaffold; pile not more than 24 in. high on scaffold. Be careful of flying spalls, use gloves when possible. Do not drop on your toes or cut your fingers. Check your tools for steel spalls and need for grinding. Keep brick spalls from under feet.

CARBON MONOXIDE, ETHER, TOLUENE, AND OTHER FUMES OR VAPORS—Beware of all fumes in inclosed areas. Be sure to ventilate area so the gases may escape. Never use any compressor for air-

mask service without special permission. Most fumes, vapors and solvents fire readily—take care.

ELECTRICITY—To be worked on by electricians only. Lock switch boxes. Get full instructions from your foreman (extremely important). See the Lineman's rules. (KEEP CRANE BOOMS 20 FT. AWAY FROM ALL ELECTRIC WIRES.) Always consider all electrical equipment and lines "Hot" until electric foreman checks it for you.

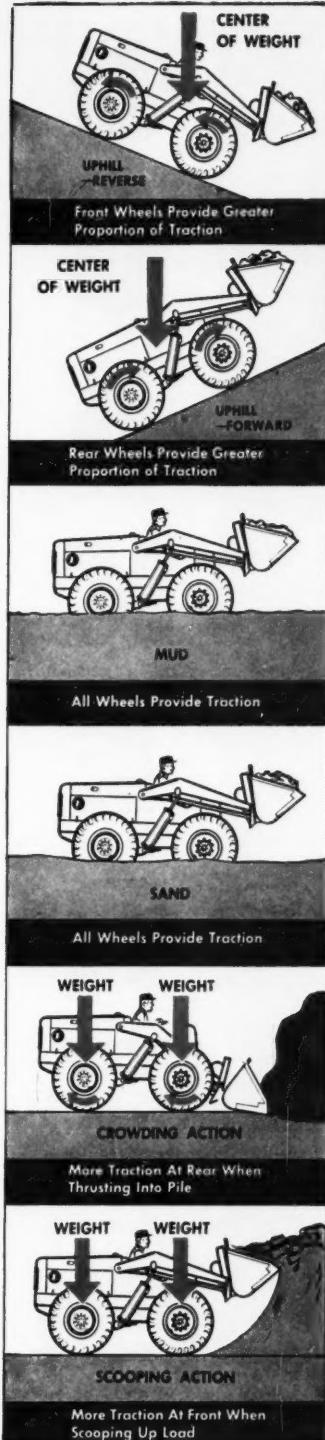
GAS WELDING AND LEAD BURNING—Keep compressed gas tanks outside operating buildings except on special permission. Check regulators, valves, and hose daily. Avoid burns. Tie tanks vertically to a support with strong wire, chain or rope. Not more than two tanks in one location. Keep working sets of tanks 15 ft. apart. Avoid oil and grease on oxygen.

GLASS—Take care not to cut hands or fingers.

Place broken glass in trash cans. Do glazing with approved window jack, scaffold or ladders only. Store glass safely.

GREASE, OIL, PIPE COMPOUNDS, ETC.—Keep these off floors to avoid slipping. Keep oil and grease away from oxygen tanks and torches.

LUMBER—Helpers handle with
(Continued on page 138)



POWERFUL EARTH MOVER with 4 Wheel Drive!

Here is an entirely new experience in earthmoving—an entirely new conception of the work capacity and job capacity of a rubber tired tractor shovel. Here is an entirely new tractor shovel—revolutionary in design—revolutionary in performance.

Big and powerful, the 1½ Yd. Model HM PAYLOADER provides tremendous digging power and ground-gripping traction for tough going in rock, sand, mud, muck or *any* terrain. With 4-Wheel Drive on large rubber tires it provides traction comparable to a crawler tractor—plus more speed, greater mobility, easier maneuverability and *far less maintenance expense*.

Compact design, short wheel base and power boosted rear wheel steering enable the HM to operate in close quarters. It has four speeds in either direction and quick acting forward-reverse control. Double acting finger-tip hydraulic control raises—lowers—dumps and closes the bucket...provides powerful down pressure for tough digging. Get the complete story on this new PAYLOADER from The Frank G. Hough Co.,

706 Sunnyside Avenue, Libertyville, Illinois.

- 1½ Cu. Yd. Capacity**
- Hydraulic Bucket Control**
- Hydraulic Down-Pressure**
- Rear-Wheel Power Steering**
- Automatic Tip-Back Bucket**
- Four Forward Speeds**
2 to 16 mph
- Four Reverse Speeds**
3 to 24 mph

WRITE for full information on any size of Payloader: the 1½ yd. Model HM; the 1¼ yd. Model HL; the ¾ yd. Model HF; the 10½ cu. ft. Model HA.



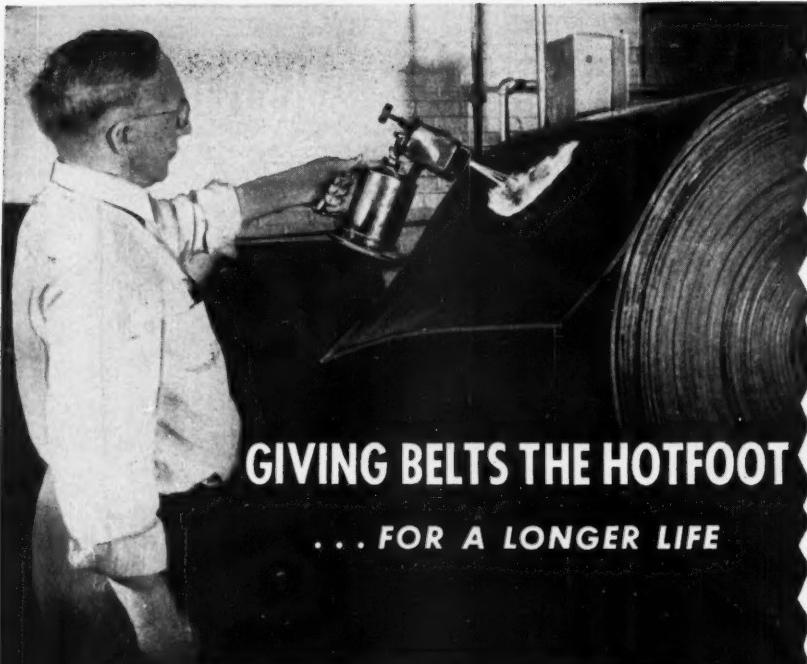
**HOUGH
PAYLOADER**
Manufactured by THE FRANK G. HOUGH CO.



Q
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RUBBER
PRODUCTS



GIVING BELTS THE HOTFOOT ... FOR A LONGER LIFE

QUAKER CONVEYOR BELTS PRE-TESTED 18 TIMES TO ASSURE LONG LIFE UNDER MOST SEVERE CONDITIONS

Rock . . . cinders . . . sand—rough and tough treatment is the order of the day, every day in the construction industry and case histories prove Quaker Belts stand up under the most severe usage. They're pre-tested and torture-tested, when they are made, to withstand every operating condition.

One of the many tests Quaker Conveyor Belts must go through is shown above. A blowtorch, at high heat, held six inches from the surface of the belt for six minutes. Quaker Belts take it and are ready for more. They're tough, rugged and built for longer wear. They're made for the construction industry to assure less maintenance . . . to save loss of labor in repairs . . . to help you reduce the "break-even point" in your operations.

Whatever your need for industrial rubber products there's a Quaker Pre-tested Product for the Construction Industry. Power and conveyor belting for every type of installation . . . rod and sheet packings . . . moulded and braided hose . . . and all kinds of custom-made moulded rubber products. To economize . . . it pays to Quakerize your operations.

HOSE THAT STANDS ABRASION



All types of hose for water, air or oil. Every length of Quaker Hose is scientifically pre-tested to withstand proper pressures and extreme wear.

BELTING FOR MAXIMUM HORSEPOWER

Whether it is a heavy duty conveyor hauling rock or sand or a V-belt on a small machine Quaker has the belt to fit the need . . . to step up efficiency.



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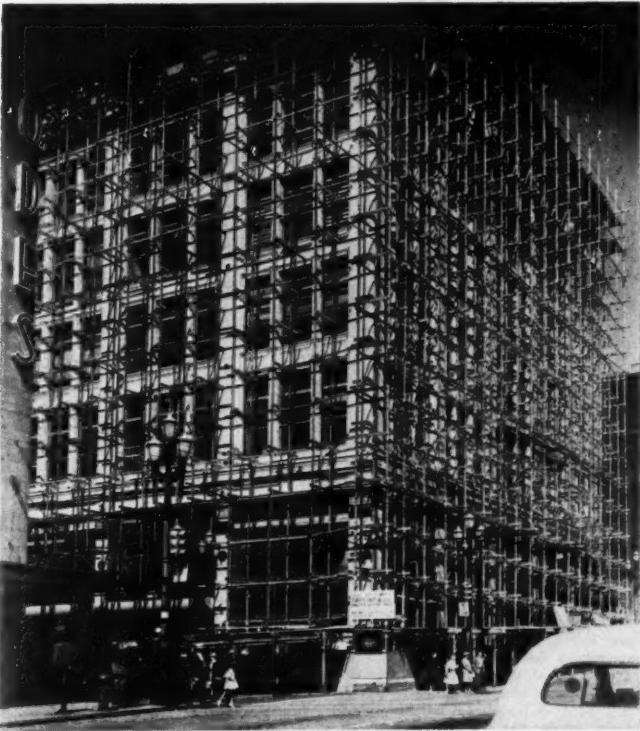
HOW THEY DID IT



THE STATE OF MINNESOTA offered this 75-ft. steel bridge at a bargain price. Koochiching County needed it for its Rat Root River, 25 mi. away, but didn't know how to get it there. Ole Thompson, a local house mover, solved the problem by hoisting the 26-ton structure, which is 23 ft. wide, on to tractor and two dollies. Here it is rolling along Route 53 on the 3-hr. trip to its new location.



WITH AMIABILITY TYPICAL of construction stiffs, men of G. J. Shaw Equipment Co., Kansas City, Mo. wheeled over from nearby job with Lorain Motocrane and used 125-ft. boom with 15-ft. jib to place statue atop cemetery bell-tower.



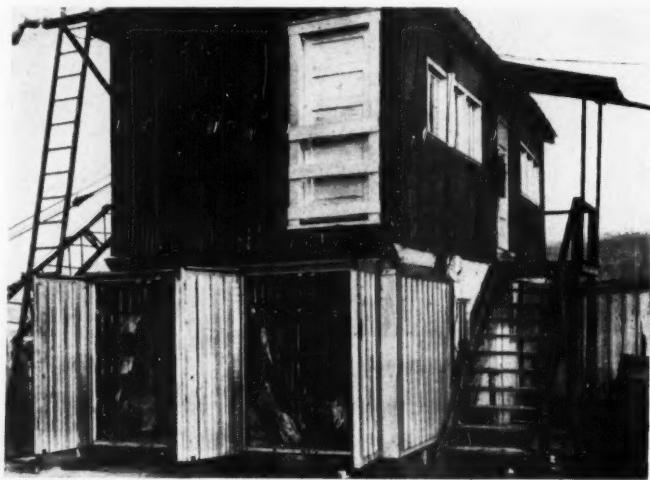
PROOF OF THE EFFICIENCY of scaffolding put up without nails, spikes or bolts was given by this 125-ft. lift completely encircling Seattle's J. C. Penney Store. Electrically welded brackets and 3-ft. steel braces hold it straight, eliminate cross-bracing and allow great reusability. Known as Knife Grip scaffolding, it derives its name from the knife edge which anchors against cross-arms on all four sides.

(Continued on page 68)

HOW THEY DID IT . . . Continued



PREFABRICATED BITUMINOUS LINING is applied to lateral canal of U.S. Bureau of Reclamation project to prevent loss of water by seepage. Linings of this type, according to Asphalt Institute, consist of asphaltic mixes or mastics applied to various types of fabrics as a backing or core and laid in place.



↑
DOUBLE DUTY is performed by these Dravo weather-tight steel shipping containers, called "Transportainers," here shown serving as foundations for portable field office (above) and as tool cribs (right) on Pittsburgh construction project. Carpenters built shelving and installed electric lights within 275-cu.-ft. containers, which are equipped with skids and lifting lugs for handling by cranes.



Koehring

advertises in



Get the Most Out of Your Koehring Mixer
Huntington, Ohio • New York • Seattle

and has for
23 years



National leaders in the
construction industry
have used Koehring
machines for over 23 years.
They're still the same
machines — the best
machines — in the
industry. They're
machines that have
been proved by
experience to be
the best in the
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23 years ago in
Construction Methods
and Equipment



because

... CONSTRUCTION METHODS AND EQUIPMENT readers—field engineers and contractors—buy and use Koehring PAVERS and other heavy duty equipment.

THE KOEHRING COMPANY knows how to sell heavy construction equipment.

They know that field engineers and contractors are tops on the list of people who have to be sold on the advantages of using Koehring equipment. They are the men responsible for getting construction work done on time and at a profit.

Koehring also knows from experience how essential it is for salesmen to get to these men . . . often enough . . . and in time to influence their buying decisions.

So Koehring advertises in CONSTRUCTION METHODS AND EQUIPMENT . . . and has since 1926 . . . to multiply sales contacts with field engineers and contractors . . . to get them interested in Koehring equipment . . . to keep that interest alive and growing. For . . .

. . . these field engineers and contractors . . . thousands of them, all over the country, on all sorts of construction work . . . read CONSTRUCTION METHODS AND EQUIPMENT month after month after month.* Its how-to-do-it, step-by-step pictures and text help them with their everyday jobs. Its advertising pages keep them informed about the equipment, materials, parts, and supplies they buy and use.

That's why, if you sell a product field engineers and contractors buy, advertising in CONSTRUCTION METHODS AND EQUIPMENT can help your salesmen and your distributors' salesmen produce more orders.

*26,500 paid subscribers by the 6.30.49 ABC statement . . . and uncounted thousands of pass-along readers.



Here are 8 other manufacturers of PAVERS who advertise in CONSTRUCTION METHODS AND EQUIPMENT to reach the men "on location" who select and buy the equipment they use.

Barber-Greene Co.

Chain Belt Co.

The Foote Co., Inc.

Hetherington & Berner, Inc.

Iowa Manufacturing Co.

Jaeger Machine Co.

Mixer Manufacturers Bureau

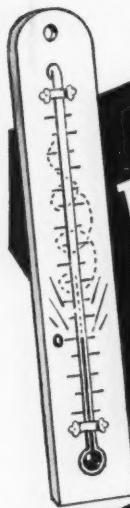
Worthington-Ransome Div.

Worthington Pump & Machinery Co.

CONSTRUCTION

SINCE 1919 THE PRACTICAL WORKBOOK OF THE FIELD MEN ON CONSTRUCTION JOBS
METHODS AND EQUIPMENT

ABC McGRAW-HILL PUBLISHING CO., INC., 330 WEST 42nd ST., NEW YORK 18, N.Y. ABP



**TUMBLING
TEMPERATURE
TIME IS HERE!**

A partial
check-list of
Cleaver-Brooks
equipment for cold
weather construction
and maintenance!

**MOBILE
STEAM
PLANTS**



Completely self-contained; portable; highly efficient, fully automatic, code constructed, weather protected; available as skid mounted unit for your truck or trailer. Ideal for pile driving and extracting — 80 to 150 hp, oil or gas fired.

**PORTABLE
PUMPING
BOOSTERS**



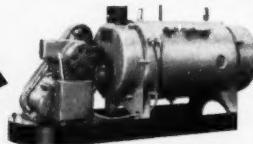
Heats bituminous material 4 times as fast; No. 1 booster — 10,000 gallon car 35° to 45° per hour, No. 2 booster — 10,000 gallon car, 55° to 60° per hour. Available as skid, two wheel or four wheel trailer mounted unit.

**PORTABLE
TANK CAR
HEATERS**



Fast steaming; 20 minutes from cold water start to 125 pounds steam pressure. Boiler feed pump, gas engine, oil burner, fuel and water tanks are all mounted on a single frame. 2 car heater — 28 hp; 3 car heater — 42 hp.

**HOT WATER
GENERATORS**



A fast, instantaneous hot water producer requiring no storage tank up to rated output; fully automatic, code constructed, insulated. Two sizes — 665 gph, 100° F. rise and 875 gph, 100° F. rise.

Despite cold and wet weather, construction and maintenance work must go on.

Cleaver-Brooks equipment provides steam, heat, or hot water — fast, efficiently, and at low cost — for a wide range of cold weather needs such as —

- Steam for cleaning machinery, thawing frozen ground, culvert and catch basin thawing, operating steam hammers and pile driving, heating buildings and offices, and other uses.
- Heating and transferring asphalt, road oils,

bituminous materials in tank cars and storage tanks.

- Thawing and heating aggregate in stock piles or bins for winter concreting.
- Heating water for central mixing plants, concrete block plants, or any large volume hot water needs.

Write for bulletins and complete information on the entire line of Cleaver-Brooks equipment for cold weather construction and maintenance.

CLEAVER-BROOKS COMPANY
387 East Keefe Avenue
Milwaukee 12, Wisconsin

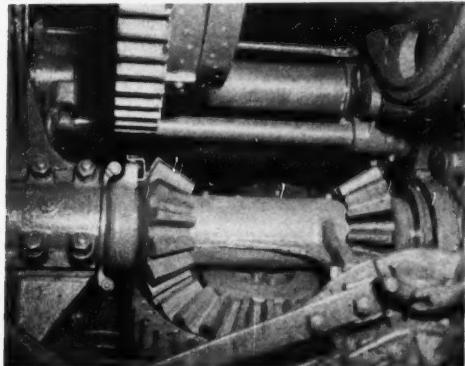
Cleaver-Brooks 

BUILDERS OF EQUIPMENT FOR THE GENERATION AND UTILIZATION OF HEAT.

MAINTENANCE TIPS

SIMPLE ADJUSTMENTS and timely replacement of parts cannot be too strongly advised for continuous satisfactory operation of heavy construction machinery. In particular, these suggestions have been offered by Russ Bucher, plant manager of R. E. Brooks Co., repair shops at Hasbrouck Heights, N.J., who specializes in maintenance of Koehring shovels and cranes.

* * * →
BROOKS CO. houses Koehring's East Coast parts warehouse. Replacement of worn pieces often prevents complete breakdown and subsequent delay.



IMPROPER SEATING of bevelled pinions and gear is major cause of floating and sway. Pin should be loosened, and collar tightened against bronze thrust washer to insure maximum turning efficiency and prevent slapping of gears.



SELF-EQUALIZING CLUTCH, like all automatic equipment, has its limits. Occasional adjustment of equalizers (arrow) will prevent one band wearing before another.

AT DAVIS DAM



MECHANIC CHECKS OUT micrometer gages from tool room of Utah Construction Co. at Davis Dam. In this manner, close control was kept of special tools. Other supplies, such as gaskets and engine parts, can be directly charged against equipment using it.



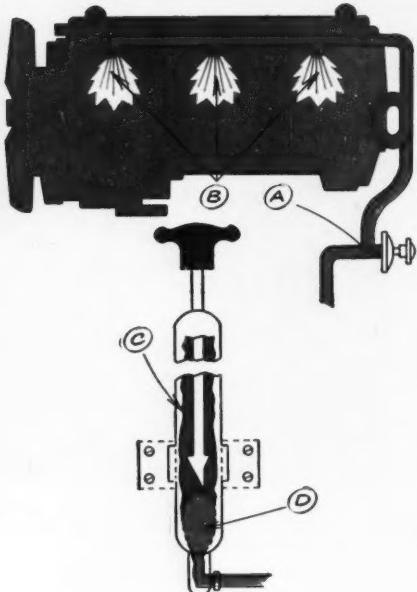
COMPLETE MACHINE SHOP facilities were provided by Utah Construction Co. in its shops at Davis Dam to insure quick repair of equipment. Here LeBlond milling machine is cutting a groove in a new drive shaft for one of the shovels on job.

STANDARD ENGINEER'S CASE FILE



Case 1174—Easy engine starting

Engines start in 10 seconds at 50° below zero!



PRIMER EQUIPMENT

FREE BOOKLET that tells how to start engines quicker and easier and is yours for the asking. Just send requests by letter or postcard to one of the companies listed below.

When Chevron Starting Fluid was sprayed into intake manifolds of engines that had been standing idle all night in 50° below zero weather, they started in less than 10 seconds of cranking. Valuable for starting at low temperatures in either gasoline or Diesel engines. Comes in convenient, easily handled capsules of two sizes -- 7CC's and 17CC's, packed 12 and 24 in metal containers. Also available for bulk use in 3-pint cans.

Chevron Starting Fluid is atomized and injected into intake manifolds as engine is cranked ... process is continued until engine warms enough to run on regular fuel ... primer equipment may be purchased from fluid supplier.

- A. Pump of primer system mounted on dash convenient to engine operator ... forces fluid to manifold.
- B. Nozzles adapted to manifold atomize fluid.
- C. Special tool for puncturing capsules containing fluid supply ... installed near pump convenient to operator.
- D. Capsule in puncturing tool ... one or more at a time may be used.



Chevron Starting Fluid contains a lubricant that helps prevent starting wear on upper cylinder walls and promotes easier starting. An oxidation inhibitor and other special additives prevent formation of deposits in engines and ice crystals in primer equipment.

Trademark Reg. U. S. Pat. Office

**STANDARD OIL COMPANY
OF CALIFORNIA**

225 Bush Street, San Francisco 20, California

The California Oil Company
Barber, N. J., Chicago, New Orleans

The California Company
17th and Stout Streets, Denver 1, Colo.

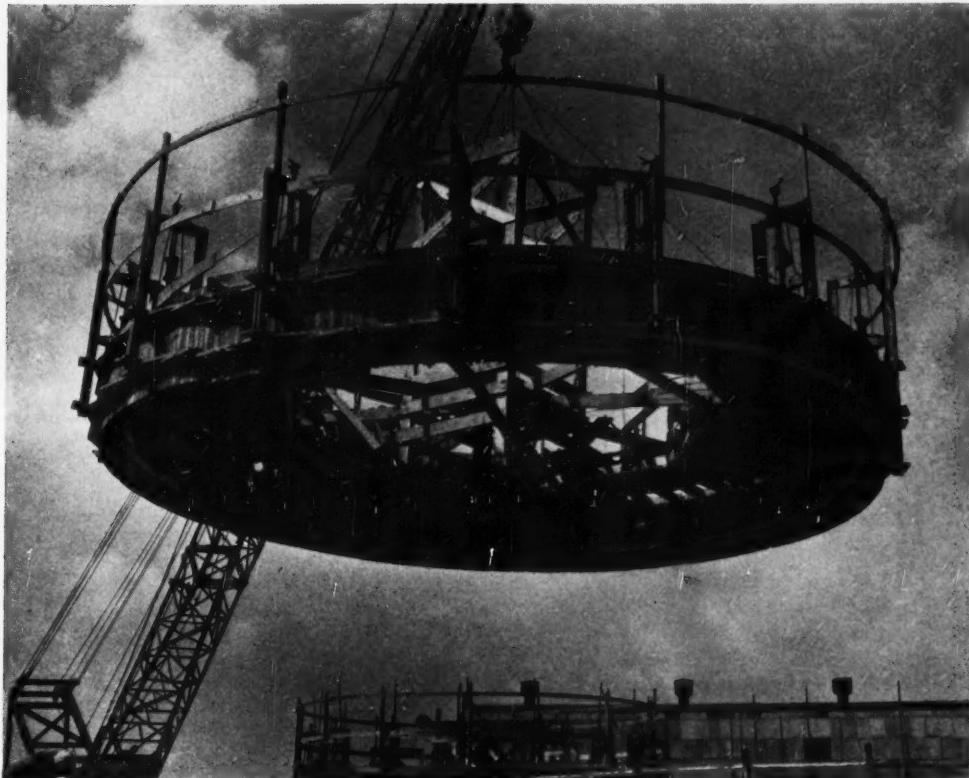
Standard Oil Company of Texas
El Paso, Texas



Readers' Picture Page

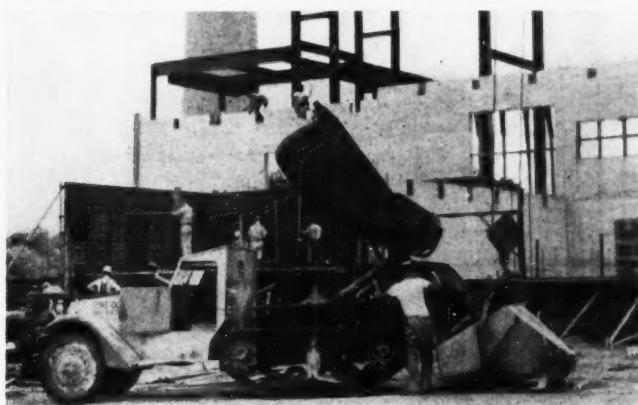
READERS ARE INVITED to send in photo contributions to this page each month. A minimum of \$5 will be paid for each picture published. Extra bonuses for outstanding shots may bring you \$10, \$15, or \$25.

Send in your job photos to the Photo Editor, **Construction Methods and Equipment**, 330 W. 42nd St., New York 18, N.Y. Every effort will be made to return unacceptable prints, but their return cannot be guaranteed.



STRIPPING A SLIP FORM from a tank or silo usually brings a sigh of relief after a job well done. But not for Macdonald Engineering Co. on the Halliburton Portland Cement Co. plant at Corpus Christi, Tex. This novel photo shows entire form being moved by crane for

start of another pouring and jacking operation on a series of low-level cement storage silos. Picture earns our number one bonus of \$25 for Carl E. Jacobsen of 3030 Austin St., Corpus Christi, Tex.



WHAT CAN YOU DO to prevent miring and slowdowns on a muddy job? Jens Oleson & Sons Construction Co. of Waterloo, Iowa, rigged up lightweight Dumpcrete bodies on surplus Army half-trucks for hauling concrete, earth fill, and river muck. Because of their sure footing, every concrete pour was kept on schedule. Rigs carried loads from central mixing plant on site of Humboldt Generating Plant for Corn Belt Power Co-operative Association near Dakota City, Iowa. Bonus of \$15 for this action shot goes to J. C. Hardcastle of Maxon Construction Co., Inc., Dayton, Ohio.

(Continued on page 74)

**NO OTHER
GRAB HOOK
SAVES SO MUCH
TIME!**



1. Slip the pin through the clevis and chain
2. Spread the cotter

**...and you're ready to put this
grab hook to work!**

It's a rugged, heat-treated drop-forged hook with a quick-fastening jaw that does away with shackling... cold-shutting... cutting, bending and rewelding chain.

Safer, too... stronger than ordinary grabs, Lauglin's Clevis Grab Hook has a forged housing that protects hands from cotter pin.

No other grab hook saves so much time... so safely!

Write for Lauglin's Catalog 145... data book of the fitting industry. THE THOMAS LAUGHLIN COMPANY, DEPT. 1, PORTLAND 6, MAINE.

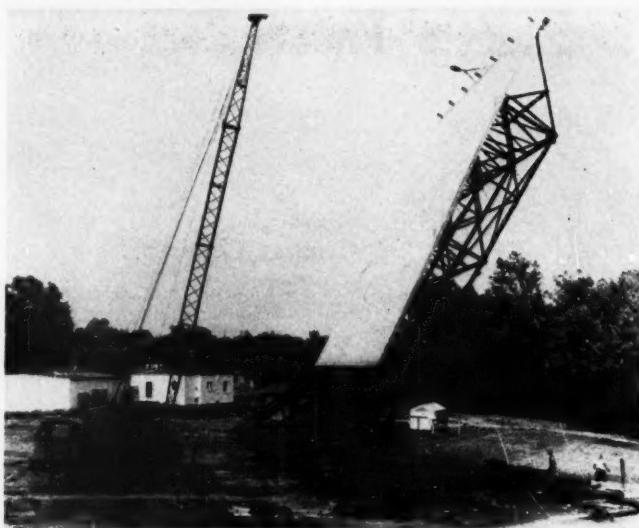
LAUGHLIN



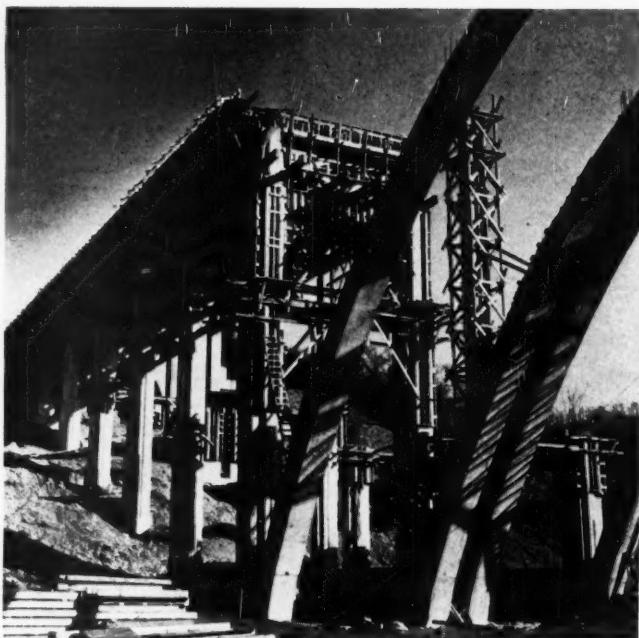
THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



READERS' PICTURE PAGE...Continued

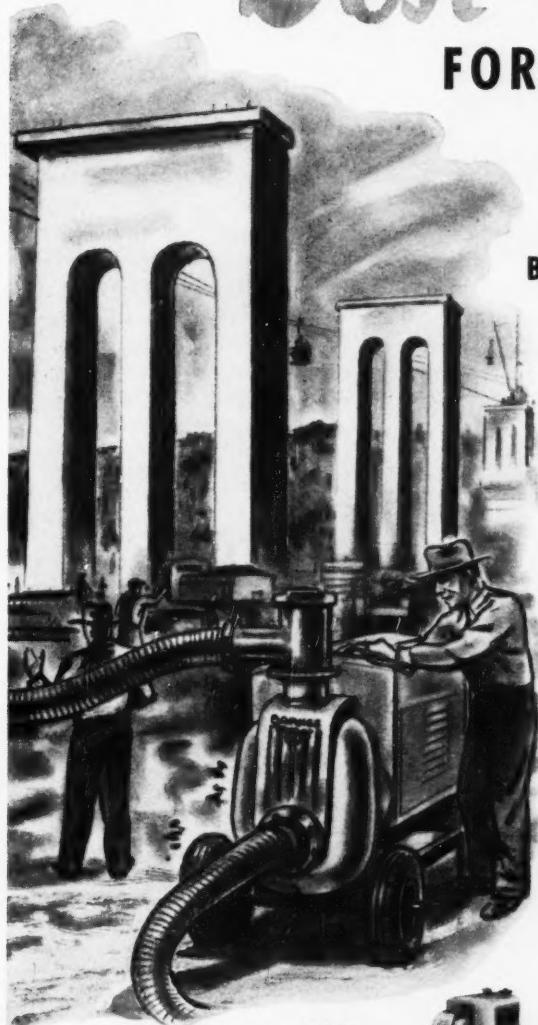


UP SHE GOES—all in one piece! Another drive-in movie screen, completely assembled on ground, is raised by use of a Lorain Moto-crane at Jefferson City, Mo. Picture was sent in by George K. Fitch, president of Fitch Steel Construction Co. of Clinton, Mo., for which we're sending him a bonus of \$10.



A STRIKING SHOT, full of details on forming and layout, deserves honorable mention and an award of \$5 for James R. Pearson, field representative in Pittsburgh for Constructors Association of Western Pennsylvania. Photo shows Eastern end of Commercial Avenue Bridge which will carry new four-lane Penn-Lincoln Parkway from Edgewood across Nine Mile Run to eastern approach of Squirrel Hill Tunnel. Contractor is Dinardo, Inc. of Pittsburgh.

THE Best Pump FOR ANY JOB!



BARNES "33,000 FOR 1" PUMPS

From start to finish, on the roughest, toughest construction pumping jobs, Barnes Automatic Centrifugal Pumps hit a new high for pumping efficiency.

Barnes Automatics deliver not 1000—not 10,000—but 33,000 gallons of water for one gallon of gas used! That's real pumping—and that's startling economy—with a plus value.

Step up your pumping capacity and do it for less money—both in operating and maintenance costs. See these quicker handling, easier handling "33,000 for 1" pumps, today. Ask for a demonstration. You have a gratifying surprise in store.

Barnes Pump Sizes to Fill Every Pumping Need



Model 90M
90,000 gph.



Model 40M
40,000 gph.



Model 30M
30,000 gph.



Model 20M
20,000 gph.



Model 10M
10,000 gph.



Model 3M
3,000 gph.

BARNES MANUFACTURING CO.

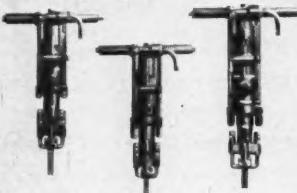
MANSFIELD, OHIO

Water Control Products for Over 50 Years



No matter where you send a Gardner-Denver Portable Compressor, you can be sure of a steady, uninterrupted air supply. For regardless of climate or altitude, the complete water jacketing of all cylinders "weather-conditions" them against over-heating—and from cold, unlubricated starts in sub-zero weather. For complete information, write Gardner-Denver Company, Quincy, Ill.

...FOR THE RIGHT AIR TOOLS



There's a Gardner-Denver Sinker that's "correct" in size and power for every type of ground. Shown here are the three most popular models: the high-speed S45 for secondary drilling or medium rock—the S55, most popular 55-pound sinker on the market—the S73, 67 pounds of speed and power for deep holes or the hardest formations.



Powerful Gardner-Denver B87 Paving Breaker has exclusive throttle safety latch—can be easily moved around the job without shutting off the air. Easily converted to a sheeting driver.



The feed of the new Gardner-Denver URM99 Wagon Drill is powered by a five-cylinder radial air motor. Designed for speedy, six-foot steel changes; carries a 3½ in. or 4 in. bore derrick drill. Your operator will like the ease of control.



The Gardner-Denver T23 Backfill Tamper is balanced for easy "walking" over the fill—has valve and exhaust that won't "freeze" in cold, damp weather—contains integral oil reservoir that assures complete lubrication.



Gardner-Denver Model 28 Clay Digger makes digging easy in clay or hardpan—can also be equipped with axe blade for trimming or cutting timber, or with moil point or chisel for light demolition work.

GARDNER-DENVER SINCE 1859

THE TIGER BRAND SPECIALIST SAYS—

"Here's one case
where wire rope care
paid off big!"

"Usually when I show up on the job, I hear all the 'gripes' about wire rope but today it was different. This contractor got rid of the bugaboo of early rope breakage and saved himself thousands of dollars. He was feeling so good, he even slipped me a cigar.

"He's done everything in his power to minimize wear and breakage of wire rope by keeping the condition of his equipment right up to 'snuff'. And he's got the best bunch of shovel runners you ever saw. They certainly know how to handle these machines without abusing the rope.

"But that's not all. Last year they switched to Tiger Brand Excellay Preformed Ropes and they've been getting better service than ever before. You can see that with 25 trucks on the job, any work stoppage—even for half a day—would cost them real 'dough'."



How proper wire rope application saves you money

There is always one best type of wire rope for every application and the **TIGER BRAND** Wire Rope Specialist can help you select the right ropes for your particular needs. He'll check your equipment, keep you posted on proper rope care, and a dozen other things to assure long service life at low unit cost.

To help you maintain these operating standards, we have prepared a booklet entitled, "Valuable Facts about the use and care of Wire Rope." Every key man on your operating staff should be supplied with this much needed information. Send the handy coupon for your copy.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO

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TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM, SOUTHERN DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AMERICAN TIGER BRAND

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Excellay Preformed

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Cleveland 13, Ohio

Gentlemen:

Please send me a copy of your booklet, "Valuable Facts about the use and care of Wire Rope."

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in low Headroom!

THE MultiFoote HighLift Boom brings a new solution to the problem of pouring concrete in low headroom. Your HighLift Boom can reach up under steel or false work where a crane can't operate.

- It will pour directly to forms with 23 ft. clearance under the bucket.
- It will load to concrete buggies or wheelbarrows up on the structure.
- It eliminates ramps, elevators and hoists.
- It eliminates the time lost in transferring concrete from mixer to crane bucket, etc.
- It gives you high capacity and mobility that permits following the job from station to station.

We have an interesting booklet that shows you what others are doing with the MultiFoote and HighLift Boom to cut their pouring costs. Let us send it to you.

THE FOOTE COMPANY, INC.
Subsidiary of Blaw-Knox Co.
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MULTIFOOTE

HIGH LIFT
TRADE MARK
Boom



HERE is the fast, smooth operating MultiFoote Duomix 34-E. Simplicity of design and the double cone drum mean easy upkeep. The high operating platform, no-pressure water system, fast operating skip and discharge, assure getting the mix on the road quickly. Ask for the new Duomix Catalog.



Send for this Booklet, "How Would You Do These Jobs?" It shows what can be done with the HighLift Boom.



THREE SIZES
27-E Singlemix (Single drum)
34-E Singlemix (Single drum)
34-E Duomix (Double drum)



MUDDLING in High Places

It is time for men in Washington and London to stop toying with the problem of international trade. We of the democratic West are at a turning point in our economic affairs. A false step by either the United States or Britain could lead quickly to disintegration of trading between the people of the world as we have known it for the past hundred years. Recent meetings of diplomats in London and Washington have not lifted us out of this danger.

By two simple tests you and I can measure the sincerity of the men in Washington and in London who are trying to solve what they call "the dollar crisis."

One test applies to the British: Is Britain making an honest effort to re-establish itself as a real competitor in world markets?

The other test applies to us in the United States: Are we willing to see Britain re-emerge as a strong competitor in world markets—even in our own home market—and to help her do so?

Today, even though both countries have faced the devaluation test, the answer to these questions probably is no.

I

The situation we face is, in fact, unprecedented. In every important industrial country of the non-Communist world, except Germany and Japan, production is above prewar volume, thanks largely to the Marshall Plan. Yet trade between nations is shackled as it has never been since the 18th century. And the shackles grow day by day. What is worse, two distinct trading areas—the dollar area and the

sterling area—have grown up in the non-Communist world, and the gulf between them grows wider.

What kind of leadership have the United States and Britain had in the face of this crisis? President Truman late in August wisely checked the trans-Atlantic bickering over the dollar crisis. *But Mr. Truman showed no awareness of the basic question that the American people must soon decide: Is the United States able and willing to generate trade between nations, as Britain did in the 19th century?*

What have British leaders offered us? Foreign Secretary Bevin and Chancellor Cripps called their September visit to Washington "one of the most important missions in history." *But they did not tell the British people, and perhaps do not admit themselves, that their Labor government must change its internal and external policies if Britain is ever to earn its living in a competitive world.*

Admittedly, the problem Britain has faced since 1945 is a colossal one. But, in the face of its grave difficulties, what has Britain done? The working day was shortened. Welfare economics have run riot. High taxes have sapped incentives. Labor and capital have clung to their prewar psychology of cartels and featherbedding. Government controls and government trading have hamstrung private initiative. Nationalization schemes have injected politics into the struggle for industrial recovery.

Thus the policies of the Labor government have made Britain's adjustment to its new position in the world immensely more difficult. But Americans who attribute the danger of an international breakdown to British socialism greatly oversimplify the problem. Virtually every country in the world, socialist or not, faces the same dollar crisis that Britain faces.

continued on next page

We Americans must recognize that our economic strength unbalances world trade as does Britain's weakness. World War II increased America's superior power to produce goods. It also made the United States more self-sufficient. Thus, while the world demand for American goods has risen, our demand for foreign goods, except for basic raw materials, has not increased. Today we sell more to every major area of the world than we buy from it—and yet we wonder why there is a dollar crisis.

It is time for us to recognize that there are two fundamentally conflicting pressures at work in the United States. One is our desire for a big surplus of exports over imports. The other is our desire for a system of free-wheeling trade around the world. We can not have both unless we as taxpayers wish to subsidize our exports. Which do we want?

Curtis E. Calder, chairman of the International Relations Committee of the National Association of Manufacturers, says, "The battle of the foreign trade gap is essentially that of reconciling our urge to export our surpluses with a reluctance to accept imports in payment for them . . . The dilemma is an uncomfortable one to face."

II

Here, then, are the basic questions that confront men in Washington and London. Does Britain really want expanding world trade or a high-cost welfare state? Does the United States really want expanding world trade or a huge surplus of exports? So far politicians in Washington and especially in London have ducked these issues because they are political dynamite.

If the people of Britain decide they want to regain their position as a competitive trader in expanding world markets, here are specific objectives that men in London should set for themselves:

1. *Lower government costs.* The British Treasury has asked for cuts of 5% in 1950. But a cut nearer 15% will be necessary, even if that means fewer government subsidies and health services. Enterprise will never revive nor costs come down while taxes take 40% of the British national income, including roughly 60% of business profits.

2. *Fewer government controls.* Only by removing controls and allocations (except on a few necessities) can Britain begin to return to prices fixed by competition rather than by government fiat.

3. *Stronger anti-monopoly legislation for both business and labor.* Britain needs a concerted drive

against all forms of restrictive, high-cost practices. This drive should put teeth in the anti-monopoly act and supplement it with legislation to end restrictions imposed by trade unions.

4. *Less restrictive trading practices.* Britain should retreat gradually from its international barter between governments if competition is ever to have free play in international trade.

Meanwhile, if we of the United States sincerely want multilateral world trade, men in Washington must face up to four problems and hammer out workable solutions:

1. *Use of the International Monetary Fund to back a devalued pound.* In time the Fund, in which we have the controlling voice, might be used to promote convertibility of pounds into dollars.

2. *Help for Britain in meeting war-created external debts.* This might mean support for London in getting a reduction of the war debts Britain owes India, Pakistan and Egypt, for example. To achieve such a debt reduction for Britain we might have to underwrite a part of a Southeast Asia recovery program.

3. *Encouragement of American investments abroad.* Such investments should be directed primarily into enterprises which will earn dollars, such as the development of new sources of raw materials, or which will raise productivity abroad.

4. *Our own tariff barriers.* Our attitude toward this critical issue will be the acid test of how deeply we believe in the merits of free world competition.

If we really want free, competitive trading between the people of the world, these issues must be met and resolved by leaders on both sides of the Atlantic. If we do not want to face these issues, then let us resign ourselves to a world walled off into three trading areas: the Communist bloc, the sterling area, and the dollar area. So far, Washington and London have muddled along, except in facing the devaluation problem. Clarity and courage are still needed.



President, McGraw-Hill Publishing Company, Inc.

are you being taken for a buggy ride?

Is the high cost of materials and labor clouding
your profit picture . . . endangering your customer relations?

To cost-conscious contractors and engineers, Rex Pumpcrete . . .
the pump that pumps concrete through a pipe line . . . provides a proved way to
substantially reduce costs!

For example! Think of the costs involved in buggying concrete!

Figure the savings to be gained when you can eliminate the buggy run and
deliver concrete through a pipe line right to the point of replacement.

Then! Figure how much you could cut your bids if you could be assured
the fastest, most advantageous form and steel setting sequence . . . if you
could achieve a closer coordination between the trades (carpenters, steel setters,
concrete crews) and reduce interference with these interlocking activities.

Because Pumpcrete makes these advantages possible through
steady pumping instead of the usual occasional pour, you can cut days off your
schedule . . . and that means money in your pocket!

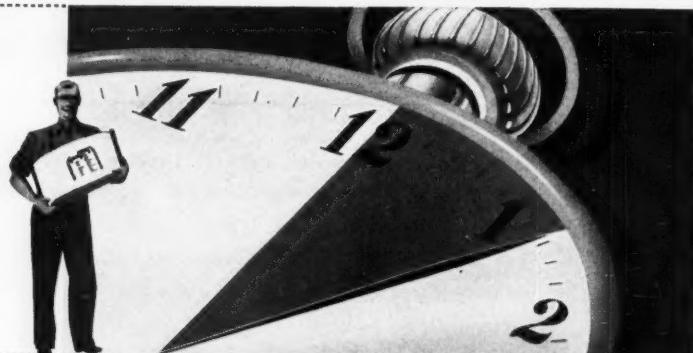
Add to these cost-cutting advantages, the fact that Pumpcrete transports
concrete through a pipe line on one or more levels . . . elevates or
lowers and distributes concrete in ONE operation. Thus, you can
eliminate the expense of road building and maintenance . . . trestling and scaffolding
. . . towers and many other items of preparatory work that add materially
to construction costs.

If you want to avoid being taken for a "buggy ride,"
talk to your Rex Distributor before you bid. He can show you how
you can cut costs . . . improve concrete quality . . . make more money with
"concrete by pipe line." If you prefer, write direct for free copies of
informative Bulletins on Pumpcrete economy. Address Chain Belt
Company, 1664 West Bruce Street, Milwaukee 4, Wis.

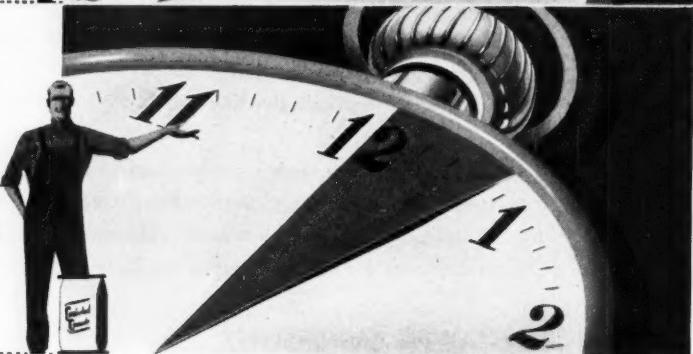
REMEMBER, Pumpcrete can now be rented from your Rex
Distributor so you can prove the economy of pipe line
placement for yourself at low cost!

To buy one sack of cement...

In 1939
a man worked almost
1½ hours



TODAY
he works only
43½ minutes



Cement costs less **TODAY!**

From the workingman's standpoint . . . from every man's standpoint . . . cement gives you more for your money.

Ten years ago, the average production employee in manufacturing industries worked an hour and 11 minutes to earn the retail price of one sack of cement. Today he can buy a sack of cement with the money he earns in only 43 minutes.*

Figure it any way you like and you'll find it's true. Cement costs less today. Cement is *cheap*.

*Hourly earnings figures from U. S. Bureau of Labor Statistics.

Today, more than ever, cement is your best buy!

Cumberland
PORTLAND CEMENT COMPANY
Chattanooga Bank Building • • Chattanooga 2, Tenn.
Portland — High Early Strength — Air Entraining — Masonry

The logo for Cumberland Cements is enclosed in a square frame. It features the word "Cumberland" in a bold, italicized serif font, with "Cements" in a smaller, regular serif font directly beneath it.

LEGAL DECISIONS CONCERNING CONSTRUCTION



The Biased Architect

THE CONTRACTOR was negotiating with a county official and their talks were about concluded.

"We should have a clause in the contract that states that any dispute will be settled by the architect. His decision would be just and impartial," the county official stated.

"That is a very common clause and I'll agree to it," the contractor said.

The contract was reduced to writing, and signed by the contractor and the proper officials.

However, the county, to be on the safe side, made a deal with the architect. He posted a bond that he would keep the cost of the building below a certain figure.

The contractor started work in complete ignorance of the deal. However, he found out the facts, but held his peace until the building was nearly completed.

"If I do it that way, it will cost me more and let the county off cheaper," the contractor said.

"That is the way I want it done, and you know my decision is final," the architect stated.

"Your decision is not final and binding on me because it is not just and impartial," the contractor countered.

"Why not?" the architect asked, and bit his tongue.

"When you gave a bond to the county to keep the cost below a certain figure, your decision was bound to be partial to the county," the contractor pointed out.

The Washington Courts ruled in the contractor's favor in the case

of Long v. Pierce County, 22 Wash. 330 in the following words: "It is an ancient maxim, applicable to arbitrators as well as judges of courts, that no man ought to be a judge in his own cause. The cause of the county became, by reason of the bond, the cause of the architect and the liability assumed by him made it to his interest to decide every effective cost of the building against the claim of the contractor. Bias and prejudice will always be implied where such conditions exist; and it was not necessary for the contractor to show that the architect's decision was unjust or partial, in order to relieve himself of its conclusive effect, for the contractor had no knowledge of the bond at the time he entered into the contract."

The Town Warrants

THE CONTRACTOR was doing work for a Washington town, was being paid by town warrants as the work went on, and he agreed to hold the warrants until they could be exchanged for town bonds which could not be issued until the work was completed.

"I've agreed to hold these warrants until I can trade them for town bonds, and I wish you'd take care of them for me in the meantime," the contractor told his bank.

"Glad to oblige you," the bank concurred, but the contractor had hardly left the bank before the cashier mailed the warrants to another bank and received credit for the proceeds.

Time passed on, the bank became insolvent, the Supervisor of Banking took charge, and the contractor claimed the value of his warrants as a preferred creditor.

"You're just a plain, everyday creditor, and must rank as such," the Supervisor of Banking contended.

"Not when I can trace the warrants to a deposit in another bank and prove that the amount of that deposit was always larger than the proceeds of my warrants," the contractor retorted, and the Washington Supreme Court in a case (Collins vs Johnson, 239 Pacific Reporter, 393), ruled in the contractor's favor.

Formerly Tractor Conn

"It is undisputed that the proceeds of the sale of the warrants, wrongfully converted by the bank to its own use, constituted a trust fund, which did not lose this character when mingled with other moneys of the bank, and that the contractor was entitled to recover the amount thereof as a preferred claim, if, and to the extent that, he sustained the burden of proof of tracing this money, either in its original shape or in a substantial form, into the moneys which came into the hands of the receiver as part of the assets of the bank," said the Court.

"Unspecified Time"

THE CONTRACTOR had completed his contract and the work was more than satisfactory to the owner. However, he was refusing to pay the contract price, so he and the contractor were locked in a dispute which was destined to reach the courts.

"You admit that the work was done according to contract and yet you refuse to pay," the contractor queried.

"That's right. You took too long to do your work so you can't collect the full price," was the owner's answer.

"But there was no time specified in the contract," the contractor countered.

"That's just it. It's up to me to place a time limit on the job. You should have finished work a month before you did," the owner stated.

"That's an unreasonable length of time to expect anyone to finish a job as big as yours," the contractor protested.

"I don't agree with you," the owner answered with his hand on the door. "You'll have to go to court for your money."

After the usual delay the case came to trial with the contractor's attorney presenting this argument to the court: "When the contract fails to specify a time for completion, the contractor is entitled to a reasonable time within which to perform his contract."

This argument was upheld in Jones, etc., Steel Company vs Abner Doble Company, which can be found in 162 Cal. 497. The same decision has been reached by the Massachusetts, New York, and Washington Courts.

RUGGED ENDURANCE



SUPER- VULCAN

OPEN TYPE
DIFFERENTIAL-ACTING

PILE HAMMERS

You can't find a pile driving job too big for Super-Vulcan. This powerful pile hammer is rugged, durable, simple in design, easy to operate . . . built to meet the requirements of experienced contractors. Its dependability, speed and endurance are tested daily on tough jobs all over the world. It drives wood, concrete or pipe piles, steel sheeting or H beams. It fits the same leads, uses the same accessories, as Warrington-Vulcan Single-Acting Pile Hammers.

For double driving power on less steam, choose Super-Vulcan.

Write today for complete details.



Sizes
18C-30C-50C-
80C meet all needs.

VULCAN IRON WORKS

Since 1862

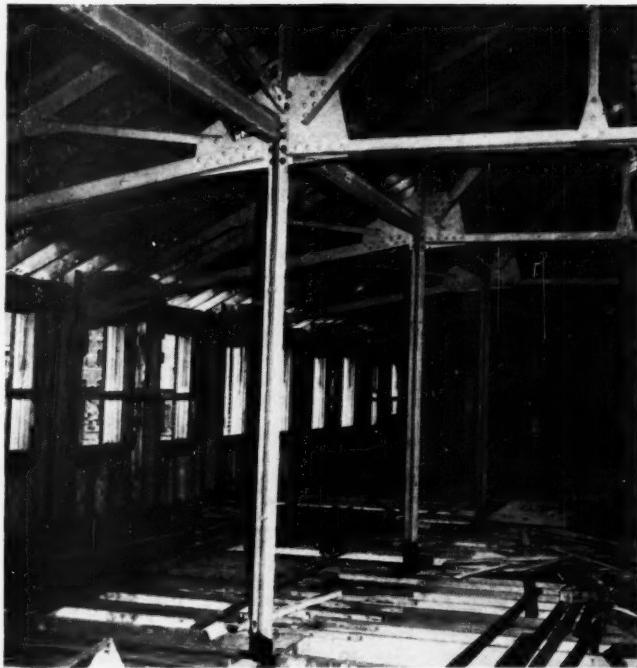
331 North Bell Avenue



Chicago 12

---Illinois

War Surplus Buildings Become



STEEL COLUMNS at every second window run to second floor ceiling height, there supporting trusses which, in turn, carry load of roof and hung second floor in re-erected building on Georgetown U. campus. Angles from truss chords run to I-beams under floor . . .

Federal Works Agency Photos



. . . ALLOWING THREE UNOBSTRUCTED classrooms below. Largest, 86x39 ft., is shown here. Buildings were formerly wings of government powder-testing plant in Pennsylvania which were dismantled and sent to Georgetown and four Pennsylvania colleges.

Classrooms



FIVE TWO-STORY WINGS from a government powder-testing lab at the Susquehanna Ordnance Testing Depot, near Williamsburg, Pa., have been dismantled by the Federal Works Agency and transported for re-erection on the campuses of four Pennsylvania schools and the Georgetown University, Washington, D. C.

This is part of a large-scale plan by the Federal Works Agency to utilize 7,000 war surplus buildings in reconstructing the teaching facilities in 1,600 colleges and universities. The nine-room structures have supplied classrooms with a total of 1,100 chairs, recreational centers, bookstores, laboratory, and cafeteria space to suit the various needs of the schools involved.

The building at Georgetown University is unique in general reconstruction—steel columns in the walls support steel trusses at the second floor ceiling level. These trusses carry the roof and also the weight of the hanging second floor. Back-to-back 6-in. angles are riveted to the chords of the trusses and run down to steel I-beams under the second floor. The main advantage in this method is three unobstructed first-floor classrooms, largest of which is 86x39 ft., seating 218 students.

The idea was first suggested by Ed Park, maintenance superintendent at Georgetown, and was worked out with the approval of Division Engineer Henry J. Sullivan, of FWA's Bureau of Community Facilities.

Another Award for Marquette

FOR THE FIFTH consecutive year Marquette Cement Manufacturing Company has won top honors for excellence in reporting in the cement industry. Corporate reports in the national survey totaled 4500. Bronze "Oscar of Industry" trophy will be presented W. A. Wecker, president of the company, at the Annual Awards Banquet in New York City on October 31.

Re-blacktopping in Tacoma, Washington, this Athey Force-Feed Loader — Portable Breaker Plant demonstrated its time saving — money saving operation by processing broken macadam at the rate of 150 tons per hour!



with Athey Force-Feed Loader and Portable Breaker Plant

Black top roads can be completely rebuilt—from the bottom up—with a job-proved Athey Force-Feed Loader and Portable Breaker Plant. It's a pick-up, crush-and-return-to-sub-grade operation in one complete unit. Three jobs accomplished in one operation—with one operator—with one result: huge savings on any better-roads program!

The Athey Force-Feed Loader and Portable Breaker Plant has gained the enthusiastic approval of highway maintenance engineers everywhere. See your Athey—"Caterpillar" Dealer today, for complete facts on cost-cutting, profit-raising Athey Force-Feed Loader—Portable Breaker Plants.

Athey Products Corporation, 5631 West 65th St., Chicago 38, Ill.



Gulping broken macadam by the yard, the Athey Force-Feed Loader and Portable Breaker Plant that crushes and deposits it, on the sub-grade, ready for mixing and rolling into a new roadway.



Athey PORTABLE
BREAKER
AND FORCE-FEED LOADER

**from CONNECTICUT TO TEXAS
in record time!**

**THEY DID IT
with the help of DRIVE-IT**

the safe, modern fastening system!



CHANCE VOUGHT AIRCRAFT PLANT • DALLAS, TEXAS

U.S. Pat. No.
1,984,117;
2,400,878



Model 222
for light
fastening



Model 238
for heavy
fastening

DO IT WITH DRIVE-IT!
and save hours and
dollars on your
Fastening Jobs!

- Anchoring metal lath and ceiling framework
- Installing metal partitions and flooring.
- Hanging air conditioning and sprinkling systems.
- Anchoring electrical junction boxes and conduits.
- Maintenance jobs involving fastening metal objects to walls, floors and ceilings.

When the Chance Vought Aircraft Plant was moved from Connecticut to Dallas, Texas, it had to be done with a minimum of production interruption. That meant speed was imperative in building the new plant.

The C. Wallace Plumbing Co. of Dallas chose DRIVE-IT as the fastest, least expensive and most efficient method to fasten over 400 tons of air conditioning duct to concrete. "Only through the use of DRIVE-IT", said the contractor, "were we able to keep ahead of the fabrication crews and get the job done in record time."

This is a typical experience of hundreds of contractors who rely upon powder-powered DRIVE-IT—teamed with the right drive pins—to do their steel-to-concrete fastening jobs. Write today for the whole story and the name of your nearest DRIVE-IT distributor.

Distributors Coast-to-Coast

Canadian Distributor: AMMO-POWER TOOL CO., LTD.,
Ft. of McLean Drive, Vancouver, B.C.

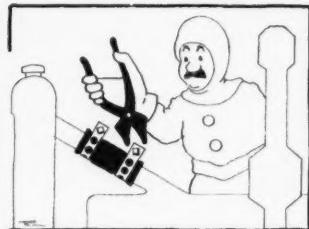
POWDER-POWER TOOL CORPORATION
0704 S.W. Woods St. Portland 1, Oregon



DRIVE-IT
THE MODERN MIRACLE TOOL

Winter's Coming

. . . Get Your
Tractors Ready



1. Tighten Cooling Connections

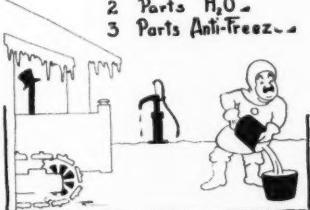
No use wasting expensive anti-freeze solution, which often leaks through water-tight joints.

FORESIGHT and preventive maintenance will keep your tractors rolling without trouble long after the icy blasts of winter hit the job. Allis-Chalmers offers some mighty good advice in a warm-up review on tractor winterization. Nothing complicated about it, but every tractor owner should heed it. Here's the dope:

Look over the cooling system. It held water O.K. all summer, but now how about anti-freeze? You'd better check the radiator for leaks and see that all hose, connections and gaskets are tight and in good condition for you don't want to lose that expensive radiator solution.

Use a permanent, ethylene glycol anti-freeze solution in the cooling system. It has a boiling point higher than 185 deg., and you can operate at a temperature of 160 to

2 Parts H₂O
3 Parts Anti-Freeze

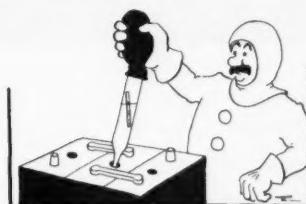


2. Use Permanent Anti-Freeze

Ethylene glycol solutions permit engine operations in the 165-185-deg. range without boiling. Three parts anti-freeze to two parts water is a safe proportion for most cold weather.

185 deg. without loss of solution. A mixture of three parts permanent anti-freeze and two parts water is sure protection against freezing. Test the solution periodically to make sure it is strong enough.

The thermostat keeps the engine operating temperature at 160 to 185 deg. Be sure it is in good working order.



3. Check That Battery

Battery care is doubly important in cold weather, for they are subject to additional loads. Keep charge up, and cell plates covered with water to prevent deterioration.

ing order. Install a new thermostat and gasket if you are in doubt.

If your tractor is equipped with a radiator shutter, use it to maintain the proper engine operating temperature. Get a radiator curtain if you don't have the shutter. Good side plates are a great help in keeping the engine warm.

In cold weather use oil of the SAE number recommended in the manufacturer's service manual. Heavy summer oil results in severe strain on the starting motor in below-freezing temperatures, even though the battery is in excellent condition.

Last summer's fuel may be a little

(Continued on page 91)



4. Keep Exhaust Pipe Covered

Your old opera hat is better than nothing to protect exhaust pipe at night from snow, frost and ice, though special gadgets are available for this purpose. How'd you like to start work with snow in your innards?



"Bonded by the Hartford Accident and Indemnity Company"

As a guarantee of the proper and successful completion of a construction project, this statement has real significance for the owner, contractor, and the general public. It both certifies the contractor's capacity and resources to handle the job and gives assurance that he is backed by the Hartford's financial security and long experience in the contract bonding field.

Operating from coast to coast throughout the United States, Canada, and in Hawaii, the Hartford has qualified surety experts available everywhere to work with Hartford bonding agents and contractors in providing quick bonding service for any undertaking, large or small.

For contractors interested in Federal Government projects, a special free service is available through the Hartford's Government Service Bureau, at 925 Fifteenth Street, N. W., Washington, D. C. Manned by experienced, capable personnel, intimately acquainted with government procedures and requirements, this Bureau can function as your own on-the-spot representative at the national capital.

For further information on Hartford bonding service, for a free supply of Record of Bids books, or for further information regarding Washington Service, write the Company at Hartford 15, Connecticut, or contact your local Hartford agent or insurance broker. In more than 5000 communities you can obtain the name of the nearest Hartford agent by calling Western Union by number and asking for "Operator 25."

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Year in and year out you'll do well with the Hartford



ZONED

PAYS OFF IN THE COLUMBIA GORGE



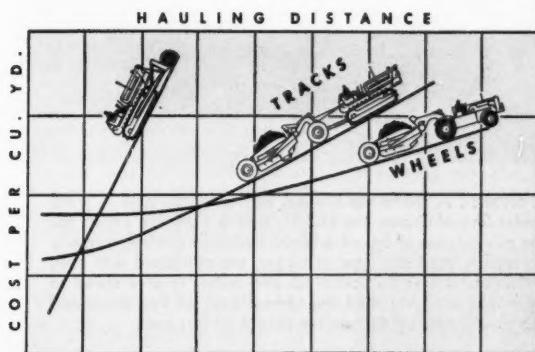
The "Caterpillar" Diesel D8 Tractor, with a "Caterpillar" No. 8A Bulldozer, can handle big blade loads in the toughest going. Special high-tensile steel in the blade and box beam construction give this 'dozer the ruggedness needed to hold up in rock work.

"Caterpillar" Diesel D8 Tractors and No. 80 Scrapers scalping topsoil off the right of way. Features of the No. 80 Scraper are its 18-heaped-yard load capacity—easy loading due to good blade angle and bowl proportions—"dozer-type" ejection—high apron lift—open-top bowl—big-tire handling ease and low over-all maintenance.



EQUIPMENT

Building a section of highway through the Columbia River Gorge near Arlington, Oregon, Rogers Construction Co., of Portland, has standardized on "Caterpillar" equipment. . . . The line-up includes a "Caterpillar" No. 28 Ripper to loosen the lava rock, D8 Tractors with No. 8A Bulldozers and No. 80 Scrapers, DW10 Tractors pulling W10 Wagons on the longer hauls, and a No. 12 Motor Grader for maintaining haul roads. In all, 30 of the big yellow machines are on this job, zoned to pay off in big production at low cost.



WATCH YOUR ZONING POINTS! Zoning points depend on grades, size of scrapers, loading methods and character of job. Too long a stretch for tracks is costly. So is too short a haul for wheels. In sound zoning it pays to standardize on "Caterpillar." Only "Caterpillar" offers a complete line of Earthmoving Equipment.

1. Track-type Tractors and 'Dozers for "push" distances.
2. Track-type Tractors for loading and pulling scrapers on medium hauls.
3. Wheel-type Tractors for high-speed hauls—plus Motor Graders for finishing and haul-road maintenance.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS



Rolling on rubber, the "Caterpillar" Diesel DW10 Tractor makes time on long hauls, traveling at speeds up to 24.5 mph. with 14 cubic yards on the W10 Wagon. Features of this productive team are the conservatively rated 115-horsepower engine, big tires, air brakes, booster steering, and hydraulically controlled windrowing of the dump.

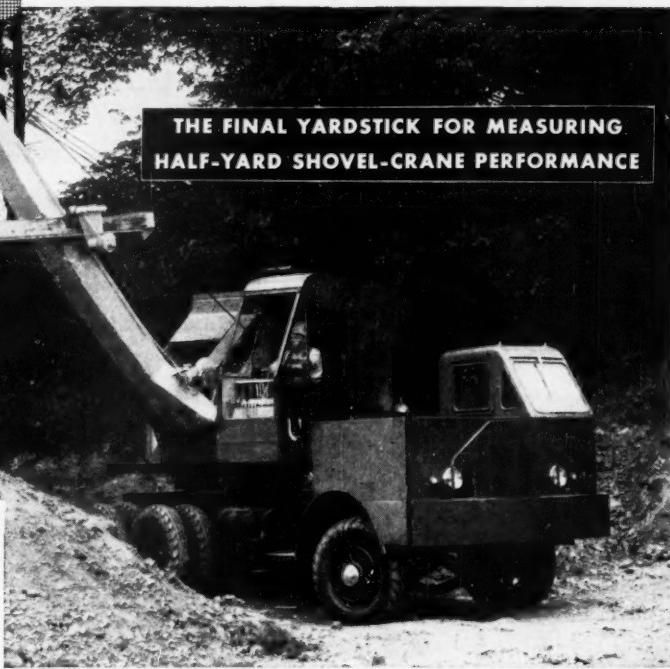
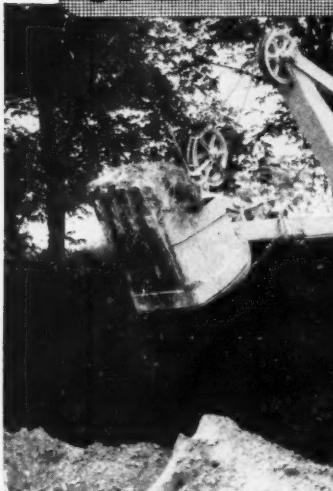
CATERPILLAR
DIESEL

NEC. U. S. PAT. OFF.
ENGINES • TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

LINK-BELT SPEEDER

HC-51

With Speed-o-Matic Hydraulic Controls



TRUCK-MOUNTED HALF-YARD SHOVEL-CRANE

WITH FINGER-TIP CONTROL
THAT BOOSTS OUTPUT
UP TO 25%



WHAT SPEED-O-MATIC MEANS

Variable pressure valves give finger-tip control, constant "feel" of load. Faster operating cycles, precision control of every movement, elimination of operator fatigue boost production up to 25% over manually operated machines of same basic capacity. Absence of mechanical linkage simplifies servicing, greatly reduces maintenance.

Fast, flexible, mobile . . . that's the 6-wheel version of the new $\frac{1}{2}$ yard Link-Belt Speeder Shovel-Crane, the HC-51, with a 12½ ton lifting capacity. All the advantages of Speed-o-Matic hydraulic control, formerly available only on 1½ yard machines or larger, are combined with new, advanced features of design on both truck and crane, to give speed to the job, high maneuverability, and the utmost ease of operation and precision control. All add up to greater output at less cost.

FEATURES THAT MAKE THE HC-51 THE OUTSTANDING MACHINE IN ITS CLASS

Specially designed truck, 10 speeds forward (up to 30 m.p.h.), 2 speeds reverse.

Walking beam rear axles allow full traction on rough terrain, even tire wear, greater stability.

Removable rear outrigger.

All-welded frame construction, both crane and truck.

Independent safety boom hoist, power raising and lowering.

Front drum reverse mechanism available for power controlled load lowering.

Same engine in truck and crane, simplifying service and repair parts stock.

All clutches except one, in upper, completely interchangeable.

All shafts and gears in anti-friction bearings, except slow-speed, intermittently used swing shaft in bronze bearings.

Splined shafts throughout.

All clutches, brakes and gears readily accessible and easily serviced.

11,632



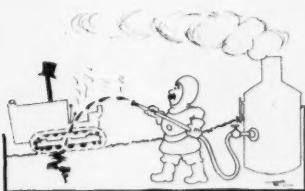
"Builders of the Most Complete Line of
SHOVELS-CRANES-DRAGLINES"

(Continued from page 87)

tle heavy for winter operation. For cold weather operations, lighter fuels, such as No. 1 Diesel, have a lower pour point and the cetane number is higher along with a low distillation end point. These characteristics permit easy starting and clean burning. See your favorite oil man. He can fix you up.

After you get the proper fuel, keep it clean and don't forget to drain those sediment sumps under the fuel tank every night before you leave the tractor.

Check all electrical connections



5. Keep It Clean

Don't let snow and mud accumulated in crawlers stay there overnight where mud might freeze solid. An easy way to remove dirt is to travel over a hard surface. The chap here is using steam, not a bad idea if available. Be sure to park rig out of mud at night.

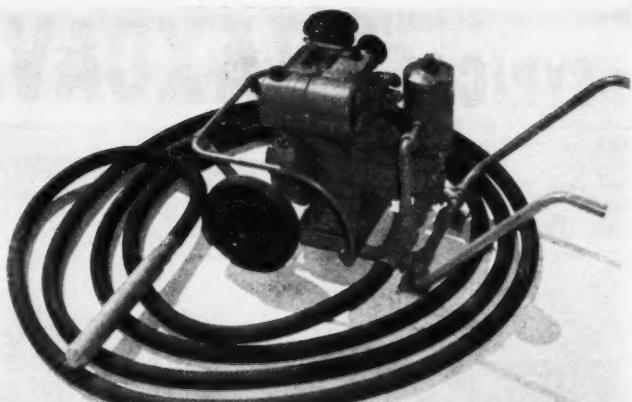
and wiring to make sure they are in good condition. Be sure the generator is charging properly. Batteries are used much harder during the winter months and must be kept in good condition to prevent freezing. Here are some items to keep in mind:

1. Keep top of batteries clean.
2. Electrolyte should cover cell plates.
3. Check battery reading at frequent intervals.
4. In temperatures below 32 deg., the specific gravity reading should be above 1.250.

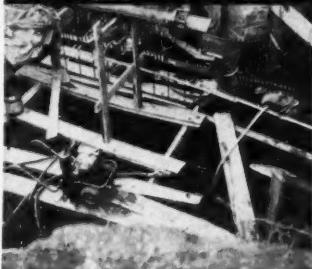
When the engine is started, it should be brought up to proper operating temperature and maintained during time tractor is in operation.

Don't forget to cover the exhaust pipe at night.

Clean the mud and snow out of the tracks and truck wheels and from the support rollers before leaving the tractor at night. Then park it on solid ground to prevent it from freezing down. A lot of dirt and snow will fall off if you run it back and forth a few times in a cleared solid place.

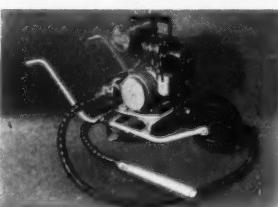


THE JACKSON HYDRAULIC



Saves a "WHOPPING" amount of time and effort!

When you place this concrete vibrator, **with its 50 ft. reach**, on the job, every bit of concrete poured within a 100 ft. circle can be thoroughly vibrated without changing the location of the machine; the hard-to-get-to places become quickly accessible, non-productive time is drastically cut and the job proceeds faster and more profitably. Tough, trouble-free and highly efficient. Write for complete details.



Model FS-6A. Flexible shaft. Gas-engine drive. Available with 3 heads for thin or thick work. Flexible shafting in 7' to 14' lengths up to 28' grinding and other attachments.

OTHER JACKSON VIBRATORS TO SOLVE EVERY VIBRATING PROBLEM — PERFECTLY!

Internal and external types—for thin sections to mass construction—highway, airport and municipal paving—product manufacture. See them at your Jackson distributor or write for literature and our recommendation for any particular type of job.



Model FS-7A. Flexible shaft. Electric. Ideal for decks, thin walls and with short shafts for spud work.



MUNICIPAL PAVING UNIT.

Manually guided paving machine and portable power plant. Easily places upward of 65 cu. yds. of stiff mix concrete per hour. Undercuts at side forms. Strikes off to crowns, regular and inverted; works around manholes, etc.

ELECTRIC TAMPER & EQUIPMENT CO., Ludington, Michigan

TYPICAL TRAXCAVATOR JOBS



Above
— T6 TRAXCAVATOR
tearing up old brick preparatory to re-surfacing
a main thoroughfare.

Right
Big T7 TRAXCAVATOR
ripping up and loading
broken concrete from a
municipal airport runway.



Tough work — but not too tough for TRAXCAVATORS. These powerful tractor-excavators mounted on "Caterpillar" track-type tractors take these and other equally hard jobs in their stride . . . in less time and at greater profit to their owners.

They are the most versatile machines of their type in the world . . . put them to work excavating, tearing up old pavement,

grading, leveling new or old streets, removing snow, or any other of the many jobs they are capable of doing and watch production go up and costs come down.

For full information on these multiple-purpose machines, see your Trackson-Caterpillar dealer today or write direct to the TRACKSON COMPANY, Dept. CM-109, Milwaukee 1, Wisconsin.

Barber-Greene

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B-G COST-SAVING BULLETIN No. 4905

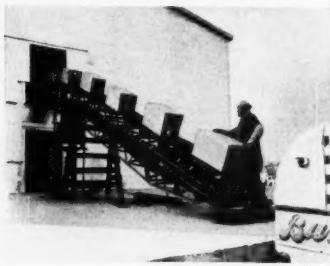
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"MILLION DOLLAR PLANT" FEATURES OUTSTANDING BELT CONVEYOR SYSTEM



14078

Simple Conveyor Proves Ideal "Second-story Man"



B-G Reversible Flat Belt Conveyor solves awkward package handling problem.

Moline, Ill.:— Getting a variety of packaged goods — sacked cement and lime, kegs of nails, bagged insulation, furniture and hardware—into and out of the second story of their warehouse was a problem that caused Moline Consumers Company to call in its local B-G distributor. The simple, low-cost solution is shown above — a B-G Flat Roll Belt Conveyor, adaptable to both inclined and horizontal use, and equipped with a serrated belt to grip smooth packages and prevent slipping.

Important to the success of this conveyor is the fact that it is powered by a reversible 5 h.p. motor. Thus, it acts both as an unloading and loading unit — from dock to warehouse, from warehouse to dock.

Uses 15 B-G Conveyors to Move Sand and Gravel from Pit to Dock

Port Washington, N. Y.:—The aggregate industry, widely noted for its large scale and efficient use of belt conveyors, offers few examples more outstanding than the Port Washington plant recently purchased by Colonial Sand Company. Designed by Merritt, Chapman and Scott Company, this million-dollar, all steel and concrete plant has had notable success in cutting the cost of moving material from pit to plant to loading dock.

High Capacity Conveyor Setup Is Flexible, Semi-Portable

Three thousand feet of B-G Conveyors—fifteen units in all—underlie the high capacity of this plant and provide the flexibility required for changing setups and relocating conveyors as the need occurs.

In contrast to rigidly permanent conveying setups, the B-G Conveyors are made up of standard "packaged" units with a high degree of interchangeability that simplifies assembly and disassembly for lengthening, shortening or relocating on the job.

Three field conveyors, fed by electric shovels, feed the field hopper, and another conveyor carries material to a crusher-scalper unit. From here, via six other separate conveyors, material is scrubbed, screened, separated and stockpiled. A B-G Radial Stacker is used to stockpile sand only. From storage, a 682-foot conveyor carries materials under a roadway to a nearby dock where they are loaded onto barges by a B-G Dock Conveyor, and shuttle-type barge loading conveyor.



Loading barge at Port Washington plant. Shuttle conveyor permits loading barges on either or both sides of the dock.

Foundry Eliminates Costly Hand-Loading of Heavy Material

Chicago, Ill.—There's a fine example here in the Pyott Foundry of how easily and simply a single short B-G Belt Conveyor can replace hand methods and cut costs to rock bottom. This company had installed a briquet-making machine to reclaim cast iron borings and turnings, for final re-use in its own furnaces. Loading this heavy material into the 12-ft. high hopper was far too costly and inefficient when done by hand—a back-breaker, at best.

So, a lightweight, low-cost 36-ft. B-G Permanent Conveyor was installed to do the job. Equipped with a small three-sided loading hopper at the foot end, it takes scrap brought from the foundry in hand wheelbarrows, and elevates it to the briquet machine hopper at the touch of a button.

Effective use of simple B-G Conveyors is one way in which plants of all types are minimizing the expense of moving all sorts of bulk and packaged materials. Volumes do not have to be large to justify their low cost. This job involves only four or five tons per day, which could not be handled so efficiently with any other method.

(See photo below)



B-G Belt Conveyor economically elevates heavy scrap material.

Doubles Capacity, Lowers Cost with B-G Conveyor

Punxsutawney, Pa.—Increased unloading capacity and lower maintenance cost were the objectives when the Kurtz Coal, Lumber and Building Supply Co. here decided to replace a vertical bucket elevator with a single 175-ft. B-G Permanent Belt Conveyor.

To date, over 250 cars of 1-inch and 2-inch stone have been unloaded and over 12,000 tons of stone unloaded and stacked. The final result: Plant capacity doubled, and not a cent for repairs.



Order and efficiency are reflected in the clean lines of this compact yard.

Ready-Mix Plant Simplifies Unloading and Storing Operations

Costly, Complicated Equipment Eliminated by Radial Stacker and Conveyors

St. Petersburg, Fla.—Operators of the Pinellas Lumber Company, progressive local cement block and ready-mix plant, look with satisfaction on their profit-making aggregate-handling belt conveyors. Where before there was a complicated system of shuttle and tripper assemblies—costly to operate and maintain—now a simple B-G Radial Stacker and four economical B-G Permanent Conveyors have taken over.

For surge capacity, about 2500 tons of aggregate are kept available. This is received in hopper bottom cars and discharged onto a 12-ft. feeder conveyor which in turn discharges into a 48-ft. permanent conveyor at right angles to

the feeder. This conveyor supplies the 78-ft. radial stacker which is mounted on railway wheels running on a rail on a low concrete structure.

Thus a kidney-shaped pile of aggregate separated into four compartments is always maintained. This pile covers an 80-ft. tunnel conveyor, fed by eight gates, which supplies the 201-ft. mixing and batching conveyor.

Radial stockpiling of bulk material, a B-G development, has many advantages: It minimizes space required for storing several classes of material, it facilitates quick and easy reclaiming and requires a bare minimum of manpower.

Four-Flight Conveyor Replaces 6½ Miles of 6% Grade Track

Roanoke, Va.—For years, the Blue Ridge Stone Corp. has used six railroad locomotives to haul limestone from the quarry three-quarters of a mile to the processing plant. This required 6½ miles of track and negotiating a 6% grade. Now a four-flight B-G Belt Conveyor is doing the job at a 350 tons per hour clip, and further improving operations by maintaining a 24-hr. stock pile at the plant. The first three flights of the system haul stone from quarry to stock pile. The fourth delivers from stock pile to plant. Here 3,798 ft. of B-G Conveyors replaced far more costly and far less efficient equipment.

B-G Radial Stacker Solves Asphalt Problem

Thornton, Ill.—Highly portable B-G equipment accomplished results normally achieved only by costly permanent units for the Gallagher Asphalt Company. For a bituminous resurfacing contract, the company had to unload the stock pile well ahead—over 53,000 tons of aggregate. A B-G Radial Stacker, fed from a B-G Belt Feeder, unloaded and stored up to 24 cars per day. Storage was over two steel tunnels each equipped with a B-G Belt Conveyor, one for sand and one for stone. Reclaiming the proper combination via these conveyors was simple and inexpensive. Typical of B-G standardized design, these conveyors are easily dismantled and reassembled for relocation and re-use on other jobs.

ECONOMICAL TWO-MAN OPERATION IN THIS 150 FINISHED TONS PER HOUR OHIO PLANT

B-G Conveyors, Crusher and Bucket Loaders Provide Required Flexibility for Job

Wapakoneta, Ohio:—Two men are all that are required to handle the extensive operations of the Wapak Sand and Gravel Company near here. This plant covers 80 acres, yet the one dragline operator and the one supervisor at a central control panel which operates the five B-G Conveyors, Feeders and Crushers, keep the entire operation going.

A fine example of efficient layout, the plant is set up ideally to minimize machine and man-hour requirements. The 1½-yard dragline at the pit loads a surge hopper over the first B-G Conveyor which feeds the B-G Ebersol Crusher. Another B-G Conveyor carries the aggregate from there to the main plant. After processing, the material is delivered to one of three 78-ft. B-G Radial Stackers which stockpile sand and gravel separately.

All material is loaded from the stock piles by two B-G Loaders — one pneumatic-tired and the other crawler-mounted.

Operating at a capacity equal to many plants equipped with extensive and permanent installations, this plant has actually no permanent construction other than the small footings under the radial stackers and the screening machinery. The B-G Conveyors are easily moved, relocated, lengthened or shortened. A spare swing conveyor is kept on hand against the time when the excavating must be further away from the plant. Thus the whole operation is on a flexible and highly efficient basis.



General view of Wapak Sand and Gravel Co. setup illustrates modern aggregate production at its best; continuous flow of material is maintained at low cost through use of B-G Belt Conveyors and Barber-Greene Ebersol Crusher.

Barber-Greene at Azusa Make Show Place for Industry

Considered to be one of the showplaces in the industry, the Azusa Rock and Sand Company's plant represents an ideal use for belt conveyors, as built by Barber-Greene to the exacting specifications of the company's management. For more than a thousand feet the pit-run aggregates are brought by belt conveyor from deposit and lifted 175 ft. to plant. Push-buttons start and stop equipment in proper sequence.

Three B-G Standardized Truss Conveyors supply the operation. In unit one of the plant a 36-in. Conveyor, 300 ft. long, carries material from the pri-

mary crusher to a 36 in. x 200 ft. B-G Stacker Conveyor, which builds the 7,000-ton live surge pile. Running from a 120-ft. concrete tunnel beneath the surge pile, a 36 in. x 518 ft. B-G Conveyor is synchronized to feed the washing and processing tower, which operates independent of unit one.

The 450 tons per hour capacity of this B-G equipped plant is great by any standard. Fifty dump trucks and 17 ready-mix trucks are kept busy distributing this plant's products in addition to the bulk of the production, which goes out by rail.



Photo shows the Loaders and the three B-G Radial Stackers which make possible large capacity storage.



General view of Azusa Sand and Gravel Plant, showing two of the three B-G Conveyors, which maintain the raw material supply for the 450 tons per hour finished production.

THE B-G LINE CUTS COSTS ALL ALONG THE LINE...

See Barber-Greene for:



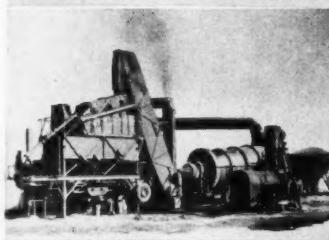
B-G BUCKET LOADERS: Crawler or pneumatic tire mounted. For low cost truck loading of bulk materials.



B-G DITCHERS: Crawler and pneumatic tire mounted, for digging trenches from $5\frac{1}{2}$ " to 24" wide and to 8' 3" deep.



B-G PORTABLE CONVEYORS: For moving all bulk materials and packaged goods. Variety of lengths, belt widths and capacities. Electric or gasoline power.



B-G BITUMINOUS PLANTS: Highly portable plants for producing all types of mixes—up to 120 t.p.h.



B-G FINISHERS: Automatically place smooth, compacted surface regardless of variations in subgrade.



B-G COAL YARD EQUIPMENT: Belt and chain-and-flight Portable Conveyors; self-propelled, pneumatic-tired. Also, hopper-car Unloaders.

Use Barber-Greene's 30 Years of Experience to Help You Plan Your Job. It can be Valuable and is at Your Service

It always pays to eliminate guesswork. Barber-Greene offers you the benefit of over thirty years' experience in designing and building equipment proved year after year on jobs—and in industries—like yours. Barber-Greene's Representatives are material han-

dling specialists with practical experience in successfully applying the right machine to jobs like yours. Consult your Barber-Greene Distributors, or write directly to Aurora, Illinois, for information you need to do your job most profitably.

**Barber-Greene Company
Aurora, Illinois, U.S.A.
Cable address "Bargrene"**

Send information as indicated:

() B-G Permanent Conveyor of _____ t.p.h. capacity for moving _____ a distance of _____ ft.
material

) Information on _____ other specifications

) Have a Representative Call _____ other B-G equipment

Name _____

Company _____

Position _____

City _____ Zone _____ State _____

CM—28,750

**Before You Bid . . .
Before You Buy . . .
Send This Coupon!**

The coupon will bring you complete information on any Barber-Greene machine without cost or obligation.

We will be glad to have our representative call to discuss your material handling problems with you.

We maintain a Department for the sole purpose of solving your material handling problems.

**BARBER-GREENE COMPANY
Aurora, Illinois, U.S.A.**

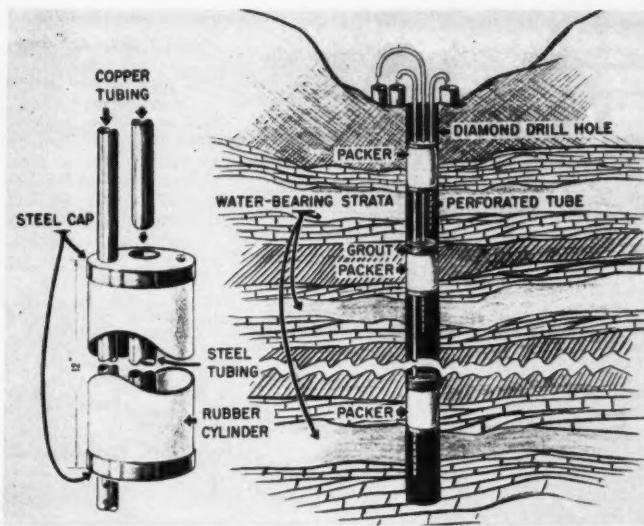


DIAGRAM OF MULTI-PACKER, designed for Bureau of Reclamation on South Dam in Columbia Basin. Packer is expanded at various water levels to make tight fit. Data for several levels are kept with use of a single hole instead of old method of one shaft for each determination.



Multi-Packer Saves Money and Speeds Jobs

A VERY IMPORTANT PART in construction of a large dam is the determination of water tables in many places in the various strata forming the foundation. Often a record of data must be kept over a period beginning prior to construc-

tion and continuing for many years after completion and filling of the reservoir. Engineers must not only know if the rock will hold the tremendous weight of big dam, but also whether these underground streams will cause the reservoirs to leak.

Up to now, the elevation of each water table has been obtained by drilling a hole through the rock, isolating the table, and sounding for its depth; a separate hole being made for each test. The problem was simplified on the South Dam of the equalizing reservoir in the Grand Coulee on the Columbia Basin project where several water tables were found in the strata of basalt.

E. D. "Dusty" Rhoades, resourceful diamond-driller for the last 30 years and veteran of many of the larger dam jobs, has perfected a multi-packer which utilizes only one drill hole for determining elevation of several water tables, thereby saving the expense of drilling and sealing a

(Continued on page 98)



E. D. "DUSTY" RHOADES, veteran driller who invented multi-packer, looks over equipment used to test foundation sites for dams. Gadget will save an estimated \$10,000,000 on future Reclamation projects.

CUT COSTS

ON UNDERGROUND

PIPING JOBS



...with a GREENLEE PIPE PUSHER

Installing pipe underground is quick and simple this way. With a GREENLEE Hydraulic Pipe Pusher *one man* pushes pipe through the ground—under streets, railways, walks, lawns, floors. Saves time, cuts costs through elimination of extensive ditching as just a short trench accommodates the Pusher. No tearing up of pavement, lawns, floors... eliminates tunneling, back-filling, tamping, repaving. Cuts job time to a fraction. Pusher often pays for itself through timesavings on first job or two.



No. 790 GREENLEE PUSHER
For 3 1/2 to 4-inch pipe. Six speeds—
5,600 to 40,000 lbs. pushing pressure.



No. 795 GREENLEE PUSHER
For pipe larger than 4-inch, concrete
sewer pipe, large drainage ducts.
Six speeds—25,000 to 150,000 lbs.
pushing pressure.



POWER PUMP For both sizes of
GREENLEE Pushers. Pushes pipe at
rate of two feet per minute.



Get facts on timesaving Greenlee tools now. Write
Greenlee Tool Co., Division of Greenlee Bros. & Co.,
2190 Columbia Avenue, Rockford, Illinois, U. S. A.

NOW YOU CAN GET

Sterling WOOD HANDLE WHEELBARROWS

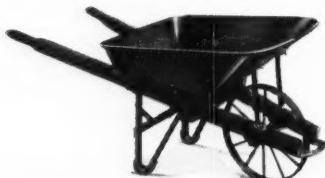


No. S-10 — for handling concrete, mortar and similar heavy materials. Maximum capacity 3½ cu. ft.

Sturdy, Wood-Handled Barrows for Ease in Handling and Wheeling

You'll like these new, lightweight, easy-wheeling Sterlings. They are so easy to handle and are designed for faster material transport service. Famous Sterling balanced construction puts 80% of the load on the wheel . . . only 20% on the operator. Wood handles are longer, formed to fit the operator's hands. Steel channel legs and reinforcements are set just the right height. Means less stoop for the operator and greater leg clearance. The husky, all-steel tray has lapped corners and heavy reinforcing rod rolled in top edge, butt-welded for additional strength. Equipped with steel wheel, roller bearing wheel with pneumatic tire or zero pressure cushion type wheel. Write for new Wheelbarrow Catalog, just off the press.

STERLING WHEELBARROW CO., Milwaukee 14, Wis., U.S.A.



No. S-12 — for handling dry materials and general purpose work in industrial plants, railroads, foundries, etc. Maximum capacity 3½ cu. ft.

Sterling
WHEELBARROWS



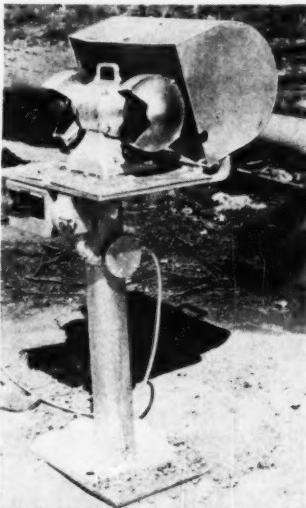
Look for this Mark of
STERLING Quality

(Continued from page 97)
separate hole for each determination.

With steel, rubber and lengths of copper pipe, he fashioned a gadget which seals off each stream in a single test hole. The depth and rate of flow at each level is measured by a long copper tube running up to ground level.

Frank A. Banks, district manager of Reclamation's Columbia Basin district has stated that the saving to the government has amounted to several hundred thousand dollars.

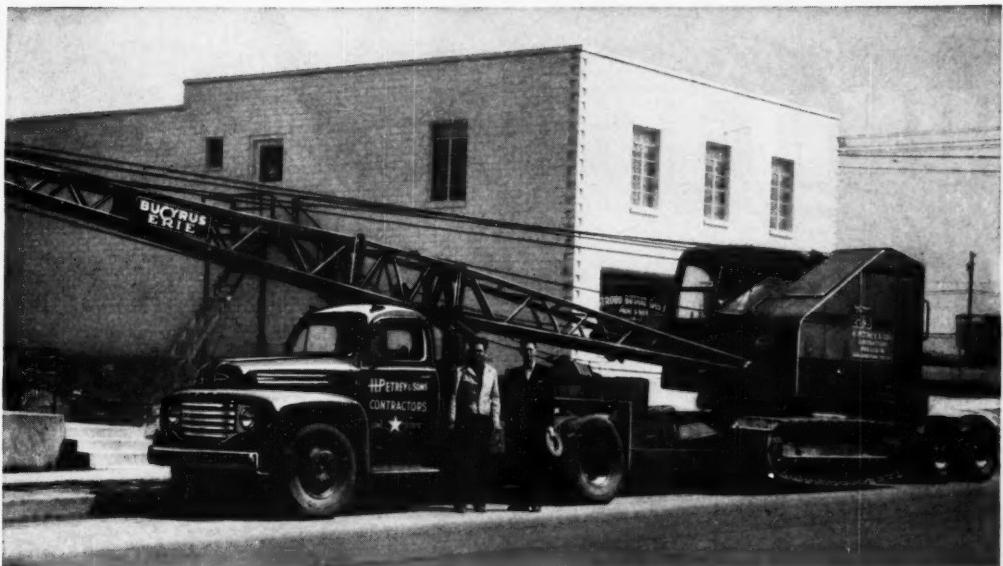
ALL-WELDED GRINDER



THIS ALL-WEATHER grinder stand with cover is always at hand and readily portable. A piece of ½-in. plate, some lightweight metal, a length of drill pipe, a few extra electrical parts, a coat of aluminum paint and there you have it, in an all-welded assembly. Note handy goggle-holder on underside at left—The Lincoln Electric Co. photo

CASH FOR PICTURES

Send in your job photographs for the monthly CONSTRUCTION METHODS and EQUIPMENT Readers' Picture Page. A minimum of \$5 is paid for each acceptable photo. Bonuses up to \$25 are awarded each month for outstanding pictures. Send them in to the Picture Page Editor.



ROADSIDE REPORT by H. Petrey of Arlington, Texas.
Ford Model F-8 shown has a G.T.W. rating of 39,000 lbs. as a
tractor. G.V.W. rating is 21,500 lbs.

"My FORD moves this equipment 10 miles faster than 5 other makes I tried!"

"RECENTLY I purchased a Ford F-8 to haul a 50,000 lb. crane from job to job," reports H. Petrey of Arlington, Texas. "I must say this 145-horsepower Ford F-8 is the King of them all. It moves this equipment 10 miles faster and safer than the 5 different trucks of other makes that I have tried, to date. I am real proud of this BIG JOB."

In terms of *Payload-Performance* the Ford BIG JOBS have no equal in their class. No other truck offers so much payload capacity in relation to chassis weight with as high a horsepower rating per gross ton. This means bigger payloads within legal load limits. It means faster, more profitable delivery of big loads. Ford's high *Payload-Performance* is evidence of Bonus Built construction. Each of over 150 Ford Truck models is Bonus Built...built extra strong to last longer.

*BONUS: "Something given in addition to what is usual or strictly due"—Webster



BUILT STRONGER TO LAST LONGER

USING LATEST REGISTRATION DATA ON 6,106,000 TRUCKS,
LIFE INSURANCE EXPERTS PROVE FORD TRUCKS LAST LONGER!

ONLY THE FORD BIG JOB HAS ALL THESE FEATURES

- ★ New 145-h.p. Ford V-8 engine for top performance.
- ★ Ford concentric dual-throat carburetor for more power, more economy.
- ★ Big Ford power-operated hydraulic brakes; front 16-inch by 2½-inch; rear 15-inch by 5-inch double cylinder on F-7, 16-inch by 5-inch double cylinder on F-8. Air brakes also available for F-8.
- ★ New heavy duty 5-speed transmissions—over-drive or direct-in-fifth—for operating flexibility.
- ★ Ford Super Quadrax single speed axles; two-speed axle available in Model F-8.
- ★ Large diameter (10-inch) wheel bolt circle with 8 studs to allow for extra-strong hub construction.
- ★ Million Dollar Cab with Ford Level Action suspension for greater driving comfort.
- ★ Nationwide service from over 6,400 Ford Dealers.
- ★ Ford Bonus Built construction for long truck life.

Gross Vehicle Weight Ratings: F-8 up to 21,500 lbs., F-7 up to 19,000 lbs. Gross Combination ratings: F-8 up to 39,000 lbs., F-7 up to 35,000 lbs.

New

UNIT 1520

*Self-Propelled
RUBBER-TIRED
CRANE*



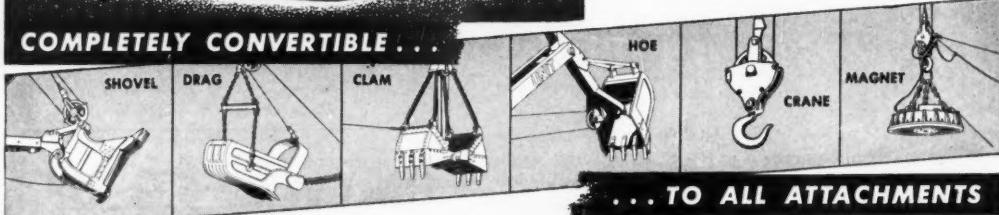
**15 TON
CAPACITY**

This 50,000 pound Mobile Crane is a completely new member of the UNIT Crane and Shovel line. Designed for both "on and off" highway operation. So compact, it works efficiently even in small, cramped quarters, "in or out" of the yard.

- Rugged . . . Perfectly Balanced
- Hook Roller Construction
- Controlled and Operated by ONE Man
- Powered by ONE Engine
- Hydraulic Steering . . . Air Brakes and 4 Speed Air-Actuated Transmission
- Heavy Duty, yet operated with remarkable SPEED . . . SAFETY . . . ACCURACY . . . ECONOMY!

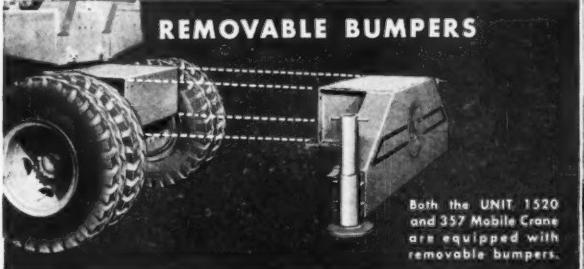
UNIT CRANE & SHOVEL CORP.
6305 W. BURNHAM STREET
MILWAUKEE 14, WISCONSIN, U. S. A.

COMPLETELY CONVERTIBLE . . .



. . . TO ALL ATTACHMENTS

REMOVABLE BUMPERS



Both the UNIT 1520
and 357 Mobile Crane
are equipped with
removable bumpers.

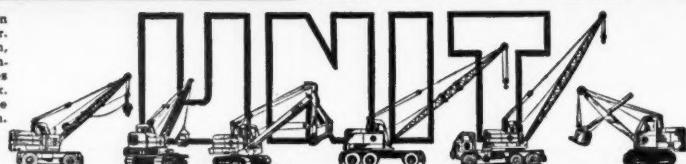
**UNIT 357
MOBILE CRANE**



WITH SHOVEL ATTACHMENT

* Self-Propelled * Rides on Rubber * Has 1000 Uses.

Greater digging efficiency is attained in excavating by removal of one bumper. Permits additional space to lower boom, thus increasing digging depth in trenching or other excavating jobs. Provides close-range operation on shovel work. Bumper is bolted to undercarriage frame and its removal is a simple operation.



SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHOES • MAGNETS

PERSONALITIES In The News



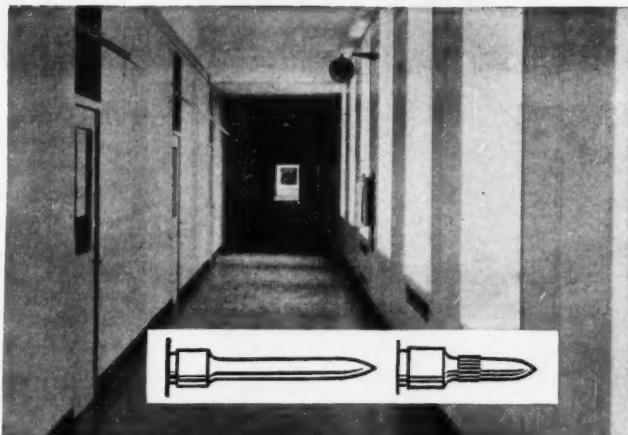
NOMINEE FOR PRESIDENT of American Society of Civil Engineers in 1950 is Ernest E. Howard of Kansas City and New York consulting engineering firm of Howard, Needles, Tammen & Bergendoff. A specialist in bridge design, Mr. Howard has participated in an advisory capacity on construction of Detroit-Superior Viaduct and Pulaski Skyway.



M. W. REED has been appointed vice-president-engineering of United States Steel Corp. A graduate of U. S. Naval Academy, Mr. Reed has served with subsidiaries of United States Steel continuously since 1916.



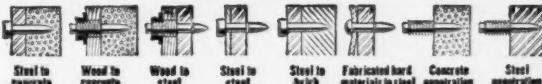
JOHN P. RILEY, Director of Development for New York City Housing Authority, has received first annual award of New York Association of Consulting Engineers. The award is based on the greatest contribution in furthering aims of Association.



35,000 *Ramset* fasteners cut costs in this building

Substantial cost savings and more rapid completion of the work resulted from the use of RAMSET FASTENING SYSTEM in this large building at Silver Springs, Maryland. Metal channels were fastened to concrete ceilings and floors with the light, portable RAMSET Tool, using 35,000 RAMSET FASTENERS as illustrated. Each fastening took less than a minute working time—much faster and far less costly than old-fashioned drilling and chipping.

RAMSET SAVES TIME AND MONEY ON MOST FASTENING JOBS



Requiring no air, electric or other external power, because it is self-powered, the RAMSET TOOL is simple and easy to operate and can be used in small, confined spaces. In an hour, we teach any good workman to be a competent "Ramsetter", able to do a wide variety of fastening jobs quickly and competently.



COMPARE "RAMSETTING" WITH YOUR PRESENT COSTS

Let us give you a 15-minute demonstration of the RAMSET SYSTEM—and prove with facts and figures how it will save you 50% or more in your fastening work. Just mail the coupon. *Stemco Corporation, Cleveland 16, Ohio.*

Stemco Corporation,
Cleveland 16, Ohio

Please demonstrate with facts and figures
how I can make a profit with RAMSET FASTENING SYSTEM.

Name _____

Address _____

City _____

MAIL THIS COUPON

A NEW ALL



The new TD-24 offers you more horsepower than any other crawler tractor available today—180 hp. at the flywheel, 140 hp. at the drawbar—plus dozens of features found only in the new TD-24.

Your International Industrial Power Distributor is now ready to furnish you with three great new stars of earthmoving power and performance—the new TD-24, the new TD-18A and the new TD-14A.

The great new TD-24 is America's most powerful and versatile crawler tractor with unmatched features for easier operation and far greater production. No other crawler tractor can give you all the features found in the new International TD-24.

And the other two stars on the new International

INTERNATIONAL HARVESTER COMPANY



INTERNATIONAL INDUSTRIAL POWER



STAR CAST

earthmoving team are the TD-18A and TD-14A. Known for years for their dependable performance, these two efficient tractors have had their power increased to do more work, to operate with even greater ease and economy.

• • •
See your International Industrial Power Distributor now. Find out the facts and get these new tractors to work for you. You'll have an all star cast in your earthmoving line-up.

CHICAGO, ILLINOIS



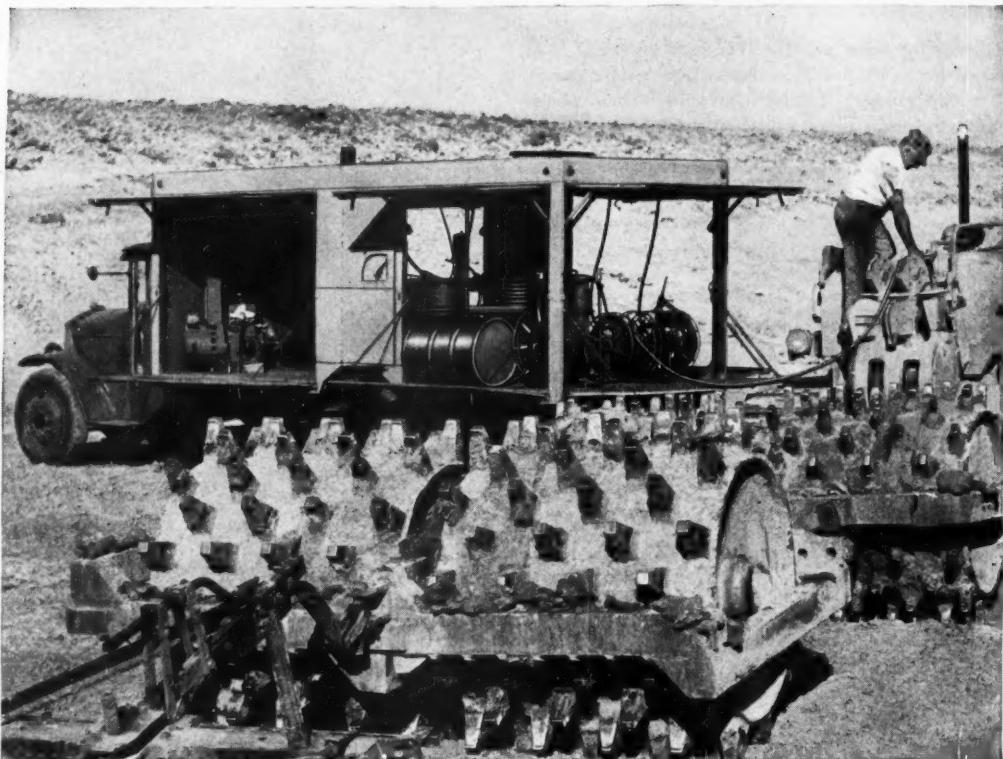
The new TD-14A has 60 drawbar horsepower and many mechanical improvements. Here is power to produce bigger payloads and to cut earthmoving costs.



Famous for its power and dependability, the new TD-18A now gives you 87 drawbar horsepower. All the famous International diesel engine features and the durable construction of the new International TD-18A make this tractor an even greater producer than ever before.



Slash Costly "Time Out" For Lubrication Up To $\frac{1}{3}$. . .



Bring Positive Power Lubrication to Machines—Right in the Field with an Alemite Portable Service Station

It actually combines in one rugged, compact, highly mobile unit the lubrication facilities of a modern superservice station. It has high and low pressure grease pumps, oil pumps, hose reels, plus all necessary connections and accessories—everything needed to provide complete barrel-to-bearing power lubrication for construction machinery right on the job.

Alemite Portable Service Stations cut "down-

time" for lubrication up to 35% . . . save grease and oil . . . reduce costly bearing failures . . . lower maintenance expenses . . . increase production and profits. You can choose any combination of pumps and equipment best suited to your needs. Discover now how an Alemite Portable Service Station can make *your* machines produce more, last longer. Write today to Alemite, 1840 Diversey Pkwy., Chicago 14, Ill.

FREE—Informative, illustrated catalog giving complete information on Alemite Portable Service Stations. Send for your copy now.



ALEMITE
REG. U. S. PAT. OFF.
MODERN LUBRICATION METHODS
THAT CUT PRODUCTION COSTS

THIS MONTH'S NEWS REEL . . . Continued from page 40



THREE BRIDGES AND A CLOVERLEAF. New 14th Street bridge in Washington, D.C., is progressing rapidly across the Potomac. Flanked on left by old bridge and on right by railroad crossing, it will lead traffic straight into Virginia or channel it around cloverleaf to Mt. Vernon Highway—Wide World Photo.



HOW NOT TO DO IT is shown in duffer's contest for lady bricklayers following Minnesota bricklayers' apprentice competition at Minnesota State Fair. Apprentices acted as tenders when they finished their section of wall. We don't need to show you where the boys with proper construction methods left off and ladies began.
(Continued on page 106)

**FlameZel
TARPAULINS**
PREVENT
COSTLY FIRES

**Immediate Delivery from
These Distributors**

NEW ENGLAND
Hedde & Mathews Co.
Parker-Danner Co.

NEW YORK
Drennan Steel Products Corp., Syracuse
Keystone Builders Supply Co., Inc.,
Rochester
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NEW JERSEY
Dale Equipment, Inc., Newark
WASHINGTON, D.C.
Hudson Supply & Equipment Co.

MARYLAND
General Supply & Equipment Co., Inc.,
Baltimore

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Contractor Service, Inc., Charlotte

VIRGINIA
Rish Equipment Co., Richmond
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WEST VIRGINIA
Rish Equipment Co., Charleston
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PENNSYLVANIA
Austin Supply Co., Inc., Philadelphia
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Flack Equipment Co., Dayton
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The W. T. Walsh Equipment Co., Cleveland

MICHIGAN
Contractors' Machinery Co., Grand Rapids

WISCONSIN
Prime-Steel, Inc., Madison
Prime-Steel, Inc., Milwaukee

MINNESOTA
Minneapolis Equipment Co., Minneapolis

SOUTH DAKOTA
Pessut Industrial Supply Co., Sioux Falls

NEBRASKA
Anderson Equipment Co., Omaha

IOWA
Harry Alter & Sons, Davenport
Pecaut Industrial Supply Co., Sioux City

ILLINOIS
Dill & Barlow Hardware Co., Chicago
Becker Equipment & Supply Co., Chicago

INDIANA
Standard Equipment & Supply Corp.,
Hammond

MISSOURI
Brummett's Corp., Kansas City
Machinery & Supplies Co., Inc.,
Kansas City
The Victor L. Phillips Co., Kansas City

MISSISSIPPI
Construction Material Co., Inc., Jackson

LOUISIANA
Police Wall Tool & Supply Co., Shreveport

TEXAS
J. E. Ingram Equipment Co., San Antonio

OKLAHOMA
Mideke Supply Co., Oklahoma City
Lelani Equipment Co., Tulsa
Tillotson Equipment Co., Inc., Tulsa
The Victor L. Phillips Co., Oklahoma City

COLORADO
Western Machinery Co., Denver

CALIFORNIA
Industrial Equipment Co. of Southern Calif.,
Fresno, Los Angeles
Standard Machinery Co., San Francisco

*COST VERY LITTLE
MORE THAN
ORDINARY TARPS*

FlameZel
Flameproofed by Wenzel
TARPAULINS

Manufactured by
H. WENZEL TENT & DUCK CO.
ST. LOUIS 4, MO.

THIS MONTH'S NEWS REEL . . . Continued



ON THE JOB!

Portable Offices and Housing for Crews

Heavy Duty Trailer Coaches
Built To Your
Specific Requirements

Let us tell you how other companies in your field have successfully used Travelite Trailers in solving their on-the-job personnel problems. Write for details.

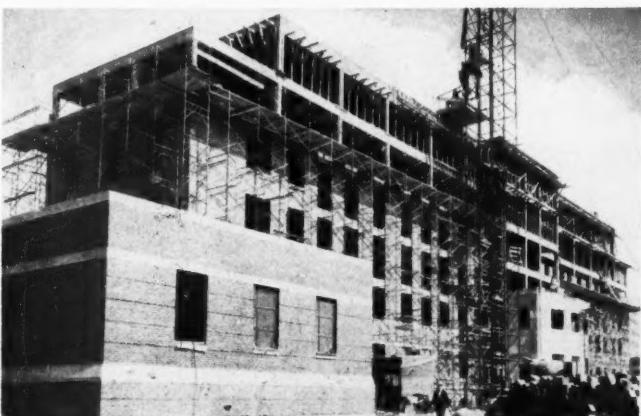
TRAVELITE TRAILER CO.
4013-41 Wentworth Ave.
Chicago 9, Illinois
and Fort Worth, Texas



A SMALL PART of 125,000 yd. of overburden down to rock being made for south shore section of Buggs Island Dam on Roanoke River. Marrow Brothers Construction Co. of Henderson, N. C., uses TD-18 Diesel crawler tractors and Athey 8-yd. side-dump crawler wagons for haul.



AT END of a 64-mi. round-trip haul, 13 yd. of sand go into a hopper of Cooper Supply Co., Detroit, Michigan, followed by an equal amount of gravel into other pit. Mack LJT tractor, one of six in use, runs on six day round-the-clock basis and can haul total gross train weight up to 58½ tons.



BRICKWORK FOLLOWED UP steel erection and spandrel fireproofing so quickly on VA hospital in Manchester, N. H., that George A. Fuller Co., contractor, couldn't use outriggers and swinging stagings, even if they wanted to. Patent Scaffolding Co.'s "Trouble Saver" steel scaffolding performed an efficient and capable job all around building.

Facts you should know

about the New General Motors Diesel Engine-Torque Converter Unit



Two 190 H.P. 6-Cylinder GM Diesel Engine-Torque Converter units power this new 34-ton Euclid 1-FFD tandem axle rear-dump. Each engine drives one rear axle, eliminating the conventional inter-axle power divider. A 3-speed Allison Torqmatic transmission does away with the clutch pedal and manual shifting. Designed for off-the-highway haulage of large tonnage, the mammoth 1-FFD has a top speed of 25.4 m.p.h. with full pay load.

ONE MANUFACTURER ONE RESPONSIBILITY The new torque converter is specifically designed and manufactured by General Motors as an integral unit with the Series 71 two-cycle Diesel engine. Result: a big saving in size and weight—no compromise designs—no divided responsibility.

AUTOMATIC SHIFT FROM TORQUE MULTIPLICATION TO FLUID COUPLING

at stall speed to 1-to-1 torque ratio in fluid coupling. Unit goes into fluid coupling whenever load requirements equal engine torque, without regard to output shaft speed.

MORE WORK IN LESS TIME

This new power unit gets the most work done in the least time. Because it is not rigidly geared to the load, the engine responds to the throttle and immediately accelerates to a high output range regardless of the speed of the load.

FREEDOM FROM SHOCK LOADS

Transmission of power through a liquid, cushions both engine and

driven machinery from sudden shock loads. Operation is liquid-smooth (free from jerks) at any speed or throttle setting.

FREEDOM FROM STALLS WITH OVERLOAD

Fluid circuit prevents engine stalling under any load condition. Ability to exert a smooth pull at any output shaft speed down to zero permits GM Converter-equipped machines to do some operations that are impossible with conventional units.

EASE OF HANDLING Eliminates time lost in unnecessary low gear operation. Operator fatigue is reduced. Work is speeded up with less effort on the part of the operator.

WIDE RANGE OF MODELS

The new GM Diesel Engine-Torque Converter unit is made available in 3-, 4- and 6-cylinder single engine units, Twin 4 and Twin 6 multiple engine units with engine ratings from 64 to 294 H.P. to meet a wide range of power requirements. Write or wire for full details.

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES... Up to 200 H.P. DETROIT 28, MICHIGAN MULTIPLE UNITS... Up to 800 H.P.
GENERAL MOTORS

DIESEL BRAWN WITHOUT THE BULK



CONSTRUCTION EQUIPMENT NEWS • A Preview of

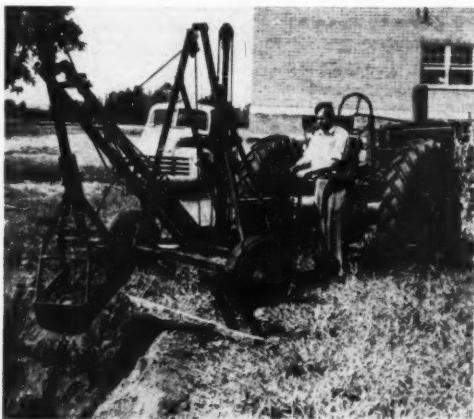
By MELVIN DEAN, Equipment Editor



Higher Power-Performance Ratings for Two Diesel Crawler Tractors

IMPROVED DIESEL CRAWLER TRACTORS feature greater work capacities, increased operator comfort and reduced maintenance. The TD-18A has 87 drawbar horsepower, 107 net engine horsepower at the flywheel, and 101 belt horsepower. Drawbar pull is rated at 22,400 lb. in first gear. Features include standard 20-in. shoes;

six speeds forward, with a maximum of 5.7 mph., and two in reverse, with a maximum of 3.5 mph. The TD-14A has 76 hp. at the engine flywheel, 60.5 at the drawbar, and 72 belt. Maximum drawbar pull is 16,600 lb. —**International Harvester Co., Consumer Relations Department, 180 N. Michigan Ave., Chicago 1, Ill.**



LIGHT-DUTY DITCHER—Has a 1/6-yd. bucket capacity, is 17 in. wide, and digs 25 yd. of material per hr. When used for trenching, it has a capacity of 100 ft. per hr. of trench 4 ft. deep and 17 in. wide. The machine weighs 1,850 lb. and can be quickly attached to any type of tractor within 60 sec. Power for operation is obtained from the take-off of the driving tractor.—**The Badger Machine Co., Winona, Minn.**



BERM SHAPER—Attachment for the Galion 402 motor grader is designed to quickly re-shape worn road berms. It consists of a deflector plate, distributing or strike-off blade, and connecting parts. As the grader is run along the pavement edge, its blade re-shapes the berm, driving excess material against the deflector plate of the attachment and thence to the strike-off blade.—**The Galion Iron Works & Mfg. Co., Galion, Ohio.**

New Machinery, Tools and Equipment That Will Help You on the Job



HYDRAULIC CHIP SPREADER—One-man-operated chip spreader has a push-button dash control. The Spread-All lays a 9- to 13-ft.-wide swath, using chips up to 1 in. It can also be used as an ice-control spreader. Hydraulically operated from the power take-off of truck engine, gate

opening and closing can be operated while truck is moving forward, backward, or standing still. Mounts any dump truck up to 8 ft. in width. —**Century Engineering Co., Waukesha, Wis.; or Paul M. Cole, 30 N. LaSalle St., Chicago 2, Ill.**, national distributor.



GAS-FUME RESPIRATOR—Combines worker comfort and safety against dust, fumes, and vapors which occur in welding, cutting, pouring, spraying, burning, and similar operations. Employs twin replaceable filters.—**Mine Safety Appliances Co., Pittsburgh 8, Pa.**



LIGHT-DUTY TRACTOR—All-wheel-drive tractor is adaptable for use in light bulldozing, leveling and backfilling, snow and ice clearance. The front-end blades, which can be manually or hydraulically controlled, are mounted on an adjustable counter-balanced frame. Features include equalized traction and hydraulic steering and braking as standard equipment.—**Detroit Tractor Corp., 3400 Scotten Ave., Detroit 10, Mich.**



TRACTOR-DRAWN SCRAPER—The Model C-314 tractor-drawn scraper has a struck capacity of 14 yd.; heaped, 17.5. It replaces the Model C-114 and is interchangeable with the scraper unit of the TS-300 Motor Scraper. The Model C-314 can be equipped with a combination of tire sizes starting with 18.00x24's up to and including 21.00x29's.—**LaPlant-Choate Mfg. Co., Inc., Cedar Rapids, Iowa.**

FOR HARD FACING AND REPAIR

Amsco[®] WELDING PRODUCTS



Ask for free
reprint of Hardsurfacing
by Fusion Welding

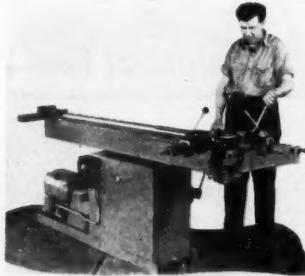
Toolface FOR HARDNESS AND TOUGHNESS

Trunnion wheels, operating in limestone dust under 40 tons pressure, are hard-faced with Amsco TOOLFACE for long wear. TOOLFACE provides abrasion resistance up to 1100°E where toughness is required; in this range TOOLFACE is both harder and tougher than the popular cobalt base alloys No. 1 and 6. Typical TOOLFACE applications are steel mill tong bits, lumbering chipper knives and metalworking cutting tools. TOOLFACE rods and electrodes are high speed steel with 575-675 BHN deposit hardness... weld readily to mild steel. Welded parts may be forged, softened for machining and re-hardened.



AMERICAN
MANGANESE
STEEL DIVISION

385 E. 14th St., Chicago Heights, Illinois
Offices in Principal Cities



PIPE BENDING MACHINE—Semi-automatic machine is recommended for speedy handling of production jobs or short-run and maintenance bending work requiring frequent changeover of set-ups. The Model 1400 bender handles tubes and pipes up to 5 ft. long, but can be extended to take any length of pipe. Maximum rated capacity is 1-in. outside diameter, 16-gage steel tubing, with a maximum bending radius of 8½ in. to centerline of pipe. Will also handle bars or rolled or extruded sections. Bends are made by a 2-in. movement of the hydraulic valve lever. The 1400 bender weighs 1,000 lb.—Pines Engineering Co., Aurora, Ill.

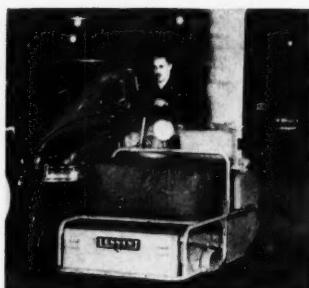
ROTARY-GEAR PUMPS—Hydraulic pump delivers 5 gpm. at 1,000 psi. to meet specific flow and pressure requirements of tractors, trucks, construction tools, and other heavy-duty hydraulic applications. Can deliver intermittent pressure of 1,500 psi. Mechanical shaft seal incorporates an air-check device that prevents entrance of air during self-priming starts, eliminating hazard of entrained air in the oil system. Ports are tapped for standard pipe thread —½-in. NPT inlet and ¾-in. NPT outlet.—Lear, Inc., Romeo Division, Elyria, Ohio.



IMPROVED FIFTH WHEEL—Designed to provide passenger-car maneuverability and elimination of tip-overs during sharp angle approaches to loading docks. This is accomplished by 4-in. offset which shifts the center of gravity of the trailer load to the inside of turns, keeping the fifth wheel always parallel with the trailer axle. Other features include 4-point suspension and an anti-jackknifing stop.—Holland Hitch Co., Holland, Mich.

CHECK VALVE FOR AIR LINES—Automatic safety check valve eliminates hazard of whipping air lines. The Danielson valve instantly checks the flow of air whenever a break occurs, whether accidental or when tools are being changed. It also detects faulty tools and leaky air lines as it will not permit operation of a pneumatic tool if the connecting line has a major leak. The valve has been pressure-tested at 3,000 psi.—Danielson Safety Valves, Inc., P. O. Box 1629, Richmond, Calif.

TRANSFER NAME PLATES—Name plates made of paper-thin aluminum foil, are available for applying company names, trademarks, or other identifying insignia to construction equipment. Metal-Cals are easily applied by a special adhesive installed at the factory, in such a manner that they cannot be rubbed or scratched out.—C & H Supply Co., 2025 N. W. Overton, Portland, Ore.

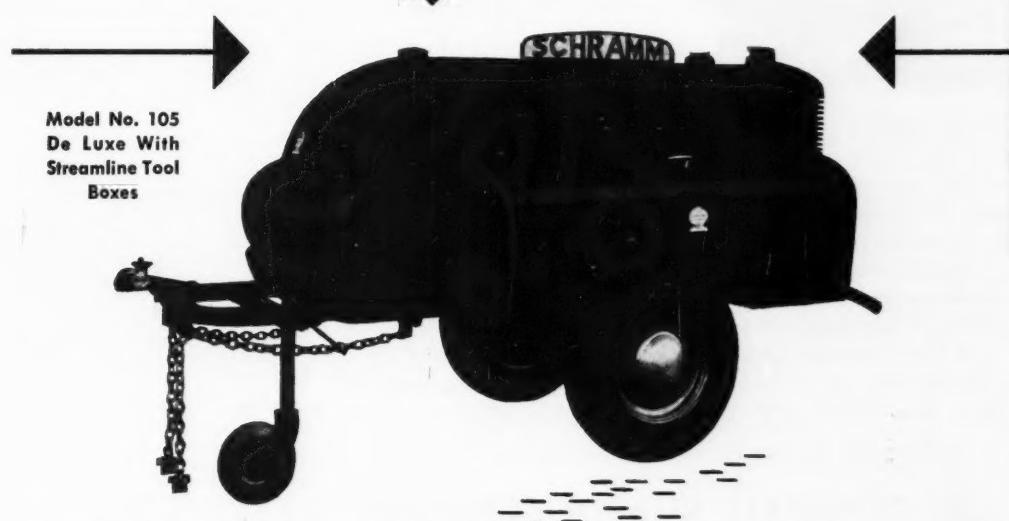


POWERED GARAGE SWEETER—Quickly removes grease, dust, tar, oil, mud and other dirt from the floors of highway maintenance shops, equipment garages, and other shops equipped with concrete floors. Powered by a 6-hp. engine, the unit cleans a path 36 in. wide at speeds up to 6 mph. It has a 36-in. dia. steel wire or fiber brush which floats on the floor surface as it revolves inside a vacuum compartment. Heavy litter and soilage is hurled into a 9-ft. hopper; lighter dust is sucked into a double-envelope bag.—G. H. Tenant Co., 2530 N. 2nd St., Minneapolis 11, Minn.

PACKAGED BIN UNITS—Line of 78-in. bin units has application for flat storage, tool storage, box and small parts storage, and display of parts or small items. Bin units are 3 ft. wide, 1 ft. deep, and 6½ ft. high. Dividers in all bins are adjustable horizontally at 1-in. intervals using Lyon Snap-ins—no nuts, bolts, or tools are required. Shelves are adjustable up and down every 1½ in. where dividers are not used.—Lyon Metal Products, Inc., Aurora, Ill.

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IN AIR COMPRESSOR
IMPROVEMENTS

- | | |
|-------------|--|
| 1900 | Independent service and repair shop for Industrial Compressors and Power Plants in Philadelphia. |
| 1908 | First really portable Engine Driven Compressor built. |
| 1917 | Multi-Cylinder Engine Driven Multi-Cylinder Compressors. |
| 1918 | Designed and built SCHRAMM engines for operating SCHRAMM Compressors. |
| 1918 | Portable Compressor with clutch between Engine and Compressor. |
| 1919 | Portable Diesel Engine Driven Compressor. |
| 1923 | Electric starting standard on all engine driven models. |
| 1935 | Built two-staging portable Engine Driven Compressors, also air-cooled single and two stage models. |
| 1936 | Perfected mechanical intake valve, the most progressive improvement in Portable Compressor design. Also eliminated out-moded two stage and air cooled compressors. |
| 1938 | Built live, self-sealing, easy turning Hose Reels. |
| 1940 | Designed large substantial tool boxes for carrying large assortment of air tools. |
| 1949 | The PNEUMASTAT another SCHRAMM innovation, that cuts fuel costs up to 50%. Also the SCHRAMM engine and compressor block with interchangeability of parts, became standard equipment on the model #105. |

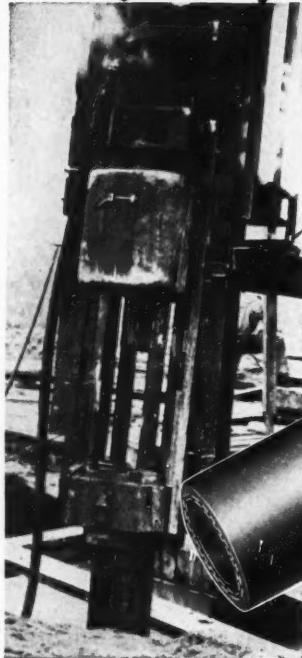


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Since it was first designed, for the earliest steam hose applications, "Inferno" has been improved to meet progressively higher requirements. Today, it represents the ultimate in steam hose construction—a masterpiece of quality craftsmanship insuring unequalled strength, durability and safety.

Flexible steel sinew has been added to the carcass. A tough, red cover provides greater resistance to abrasive wear and all kinds of weather. The tube is made from the most efficient rubber compound ever developed for steam.

A Goodall "Standard of Quality" product, for pile driving and all other heavy-duty steam jobs, at pressures up to 200 lbs. and steam temperatures to 400°F. Made in sizes $\frac{1}{2}$ " to 2", I.D., in maximum lengths of 50 feet.

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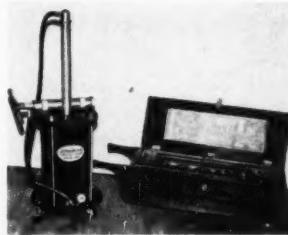
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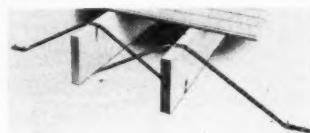
Est. 1870



SPRAY-GUN KIT—Complete, easy-to-carry kit weighs less than 17 lb., including the gun. The Payswell self-contained gun combines a compressor, motor, and spray element in a single streamlined unit. Sprays a quart in 4 min. at 50-lb. pressure. Operates on 110-v ac/dc. Features include pistol-grip handle and trigger-type switch.—Selco Corp., Dept. Z-69, 801 Andrus Bldg., Minneapolis 2, Minn.



HYDRAULIC SLEEVE PULLER—Portable power unit can be equipped with adapters for use in removing and installing dry cylinder sleeves in heavy-duty truck engines. The Model 10 can be attached to any standard air line, and develops a 115 to 1 ratio of mechanical pressure at the ram. No other auxiliary power is required for operation of the unit.—International Tool Corp., P. O. Box 697, Chula Vista, Calif.



BRIDGING FOR WOOD JOISTS—Ready for use without cutting or fitting, Tru-Tye steel bridging is sold in one stock size for wood joists of any standard depth installed on 16-in. centers. Easily installed, only two nails are required for each bridge. Tru-Tyes hold the joists in tension and permanently reinforce the building framework. Strength of the bridging in tension is 2,000 lb.—Dravo Corp., National Department, 1203 Dravo Bldg., Pittsburgh 22, Pa.



PNEUMATIC PAVING BREAKER—

The RC-80 paving breaker features the Reed-Cleco rock-drill-type valve which provides full control of both power and reserve stroke. This is said to insure hard, uniform blows, fast action, minimum recoil, easy riding qualities and low

air consumption. The reversible grooved piston is cushioned on the power and return stroke, reducing operator fatigue and eliminating side rod breakage. Large oil reservoir provides automatic lubrication; pressure-seated throttle valve gives positive shut-off and accurate control; air reservoir in the back head assures uniform air pressure to the piston; and oversize air porting assures longer effective stroke and full pressure on the piston during the power stroke.—Cleco Division, Reed Roller Bit Co., P. O. Box 2119, Houston 1, Tex.

PAINT FOR ASPHALT SHINGLES

—Waterproof finish for painting and weatherproofing asphalt sidewall and roof shingles is being marketed under the Asphalt-Seal trade name. Developed especially to restore and beautify insulated brick siding, it stops bleeding and crumbling by sealing the pores of the surface. It leaves a colorful, waterproof finish. Available in 1- and 5-gal. cans in three light and four dark colors. —Dewatex Mfg. Corp., W. 42nd St. and Dyer Ave., New York 18, N. Y.



SELF-PROPELLED ARC-WELDER

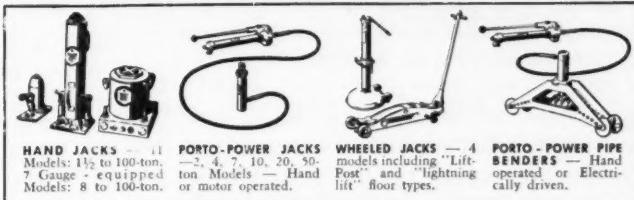
—Designed as mobile unit to speed welding operations in the field. The Weldmobile is available in two new models—the GR-301-M with a 300-amp. welder for light to heavy welding requirements; and the GR-401-M with a 400-amp. welder for medium to extra-heavy welding requirements. Either can be furnished with 1- or 3-kw. auxiliary dc power for supplying lights or portable power tools. Weldmobile has a coupler at the rear to permit towing additional equipment such as trailer-mounted welders, air compressors, etc.—Hobart Bros. Co., Box 389, Troy, Ohio.

BANK ON BLACKHAWK.... for a Jack for every Job!



TWO EXTRA-HIGH LIFT BLACKHAWK JACKS (Model EA-27) yoked together to pull well casing. These jacks have top height of 49-1/2", lift 20 tons each. Smallest of Blackhawk's many Hand Jacks is 7-1/16" high, lifts 1-1/2 tons. Largest lifts 100 tons.

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HAND JACKS — 11 Models: 1½ to 100-ton. 7 Gauge equipped Models: 8 to 100-ton.

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THIS JOB ON A BUSY STREET CALLED FOR THE PUMP THAT STAYS BUSY!

North Fourth Street in Milwaukee, Wisconsin, is a busy thoroughfare, especially the block between West Michigan Street and Wisconsin Avenue. To lay a new, larger sanitary sewer on this heart-of-the-city job, contractor Otto P. Seefeld had to have equipment that would keep busy without fail.

In the illustration, two Marlow Self-Priming Centrifugal Pumps (a 4-inch 40M and a 3-inch 20M) are shown bypassing sewage as the construction of the new line progresses. In this service these pumps were called on to pump continuously. Large business buildings in the area and a Y.M.C.A. building across the street were depending on them.

The contractor depended on these Marrows, too. There was no room here for a pump that couldn't

stay on the job without attention.

A Marlow Water Wizard stays busy. It doesn't quit pumping and need to be reprimed. It doesn't need adjustment or manipulation and there are no parts to jam or cause trouble. It doesn't hold up work to be cleaned. You can't beat a dependable Marlow Water Wizard.

Your files should contain the catalog on the World's largest line of construction pumps. Ask your nearest Marlow distributor or write factory.

**MARLOW PUMPS
RIDGEWOOD, NEW JERSEY**

CASING FOR SHAFT COUPLING

—Lightweight revolving coupling is split axially to permit installation or removal in a space no longer than the coupling itself. Design of the casing and grease-retaining seals allow complete flexibility of the coupling. The Type A casing employs a pliable lubrication seal at each hub end. The casing is driven by special interlocking features built into the seals which engage with the coupling chain. Type C employs a lubrication seal on one end only, with the other end sealed by the clamp fit of the casing halves on the finish-ground hub of one of the coupling sprockets. These casings are driven through the clamp fit between the casing and one coupling sprocket.—Diamond Chain Co., Inc., 402 Kentucky Ave., Indianapolis 7, Ind.



CONCRETE VIBRATOR—Illustration shows an HCV-3 Hi-electric vibrator connected to an HGG-1 Hi-electric gasoline-engine-driven generator by a Hi-electric line cable. Vibrator has a 180-cycle motor in the head, weighs 12 lb., and has a 2½-in. dia. Generator can be used to operate 2 vibrators simultaneously; 1 vibrator and 1,000 watts of 110-v. floodlights; or 2,500 watts of floodlights. It weighs 300 lb. The line cable can be up to 200 ft. in length, permitting the generator to be located out of the way of pouring operations.—Maginniss Power Tool Co., P. O. Box 28, Mansfield, Ohio

MOBILE RADIO EQUIPMENT

Portable 25-50 mc mobile radio communication equipment meets all new FCC regulations. It is available for 20 or 40 kc channel widths, the narrow-band units making 40-kc adjacent channel operation practical in the same service area. Tests of the equipment indicate that skip interference from stations on frequencies 20 kc removed is entirely eliminated, without loss of ground wave communication range. The complete line includes a 50- and 250-watt station combination, 30-watt and 50-watt mobile units, remote control consoles, antenna equipment, and accessory items.—General Electric Co., Transmitter Division, Electronics Park, Syracuse, N. Y.

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(The Name To Remember)

BODIES
AND
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ANY CAPACITY
ANY SIZE-

for
ALL
MAKES OF
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Photos show a PERFECTION No. 254 Dump Body and No. 827 Iso-Draulic Roll-A-Lift mounted on 4-wheel trailer. Length 168", width 84", capacity 6 yd., wheelbase 108".

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Galion, Ohio, U.S.A.

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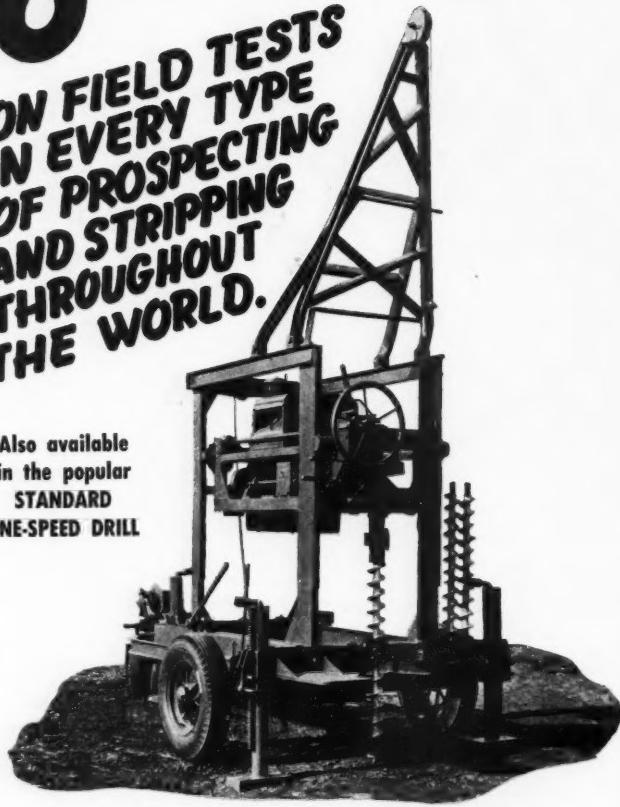


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STANDARD or SPECIAL UNITS
IN ALL SIZES - FOR ANY USE

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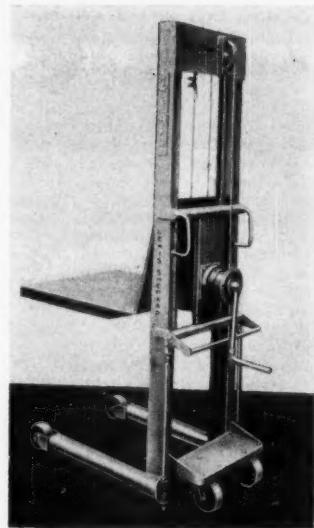
**ON FIELD TESTS
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AND STRIPPING
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STANDARD
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The Parmanco Two-Speed Transmission Drill is designed to meet the requirements of the general prospecting field where it is not necessary to drill in solid limestone. Special sliding frame permits drilling and pulling of augers without moving drill. New design of chuck eliminates all hand operation in raising power plant. Recommended for 50 to 60 feet with four and one-quarter inch equipment. Under favorable conditions it is being used to greater depths and can be used with six-inch equipment.

PARIS MANUFACTURING COMPANY
PARIS, ILLINOIS



UTILITY HOISTING PLATFORM—Hoisting unit, equipped with a 24x30-in. platform, has a capacity of 1,000 lb. Lowered height is 66 in.; extended height, 76 in. The L-S unit will lift loads to a height of 58 in. Roller bearings and caster-steer wheel assure maneuverability in confined areas. Crank handle can be swung out of position when not in use.—**Lewis-Shepard Products, Inc., 266 Walnut St., Watertown 72, Mass.**

PAINT REMOVER—Features of Strip-Master paint-removing compound include: easily rinsed with water—requires no other neutralization; will not burn or support combustion; will not irritate normal skin; and leaves a smooth surface as it does not etch fine metals or raise the grain of wood. Coverage varies with finishes—averages about 1 gal. per 200 sq. ft.—**Holland American Co., 8124 S. Hoyne Ave., Chicago 20, Ill.**



SNOW PLOW FOR PAYLOADER—Reversible and V-type snow plows attach to the 4-wheel-drive Model HM Payloader. Features of the HM include 75-hp. gasoline or diesel power unit, large pneumatic tires, hydraulic power control for raising and lowering of the plow, speeds up to 24 mph., power-boosted rear-wheel steering, hydraulic brakes, and all-weather cab available as optional equipment.—**The Frank G. Hough Co., 706A Sunnyside Ave., Libertyville, Ill.**

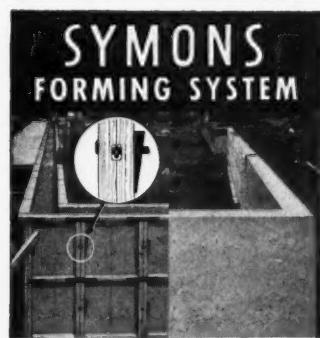
NEW! Heating Unit for Winter Jobs

- Ideal for Concrete Work
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- Over One Million B.T.U. Output



A sturdy, dependable heating plant. Has many construction uses. Recommended for concrete work in low temperatures. Warms aggregate at batching plant; prevents freezing concrete while setting. Just the thing for drying and curing plaster or paint and other such jobs. Preheats machinery. Burns 1 to 9 gals. distillate or kerosene an hour; furnishes up to 1,100,000 B.T.U.'s direct heat per hour. Built-in fan delivers up to 7,000 CFM at $\frac{1}{2}$ inch water pressure or 5,000 CFM at 5 inches pressure up to 250°F output. Gasoline or electric motor furnished if desired. Adjustable outlet pipe is removable for adapting to fit job. Mounted on skids. Used on Federal and private construction. Almost 3,000 in use on farms dehydrating corn. Beat weather delays . . . write, wire for full information . . .

BEHLEN MANUFACTURING CO.
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Inset shows how Symons System saves time in erecting and stripping forms. Bolt passes through 2 x 4 studs and tie loop. Wedge secures the assembly. This simple device cuts forming time 50%.

SAVES LABOR

Harry G. Dehring, Foreman, Taylor Brothers, South Bend, Ind., states "Seven men set up the forms for a 26' x 27' foundation in one hour and fifteen minutes."

SAVES COST

With Time and Labor cut in two . . . Plus savings in nails, spreaders, walers and bracing . . . Plus for greater reuse of forms . . . Costs drop to a new low.

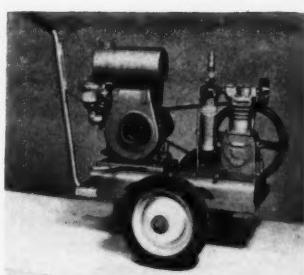
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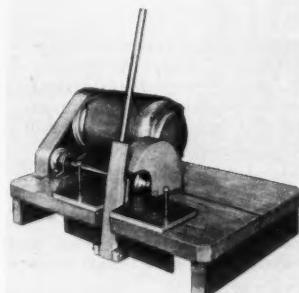
CHICAGO 39, ILLINOIS



PORTABLE AIR COMPRESSORS

Two working pressures and two air deliveries are possible with two new dual-pressure portable air compressors. Model B-140-DS is powered by a $\frac{1}{2}$ -hp. electric motor; the Model G-1440-DS, by a $\frac{3}{4}$ -hp. gasoline engine. Both models operate at 150-lb. pressure delivering 2.4 cfm. of free air. Shifting a lever converts compressor to a continuous-running unit at 50-lb. pressure delivering 3.2 cfm. of free air.—**Kellogg Division, American Brake Shoe Co., 230 Park Ave., New York 17, N. Y.**

CO FUMES DETECTOR—Mechanical watchdog guards motorists and workmen against dangerous concentrations of carbon monoxide in tunnels and similar locations where there is a restriction in free flow of air. MSA device can detect as little as one part of deadly gas in a million parts of air, and can be set to automatically activate ventilating fans when concentrations exceed a predetermined limit.—**Mine Safety Appliance Co., Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa.**

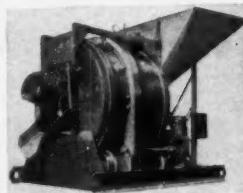


HOSE CUT-OFF MACHINE—Cuts all types of flexible hose—including hose reinforced with wire braid—up to 3-in. in outside diameter. Sturdily constructed, compact, and planned to occupy a minimum of space, the hose cut-off machine cuts at 90 deg. to the axis of the hose without leaving frayed ends. Unit can easily be mounted on work bench, and transported to various job locations.—**Aeroquip Corp., Jackson, Mich.**

MONEY-MAKING



MIXERS

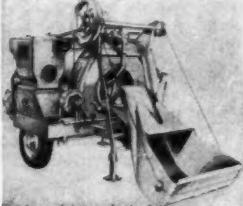


CMC 56-S TWO-YARDER
Specially designed to facilitate increased Central Plant production on big jobs or in commercial plants. Adds CMC's unique features for more **FASTER SMOOTH IN**, and **MORE EFFICIENT** operation. Equipped with Timken Bearings throughout. Standardized tapered drum liners and hard alloy coated discharge buckets insure extra long life. Hydraulic finger-tip controlled charging and discharging.



CMC 115 AND 165 FOUR WHEELERS

End or side discharge. Furnished in optional truck mountings. Compact construction for easy trailing and spotting on job. Timken roller bearings. Machined drum trucks. Improved stabilizers.

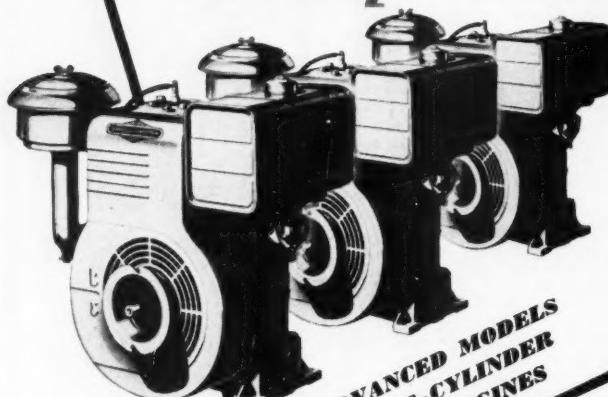


CMC 6-S TRAILER
HERE IS THE MOST VERSATILE MIXER ON WHEELS. Superior CMC design assures fast, smooth mixing. This high-speed, non-turbine unit incorporates all the plus-new features that have made CMC mixers "top in the field."

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MACHINERY
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Air-Cooled Power
Headquarters



... 3 NEW, ADVANCED MODELS
 OF 4-CYL. SINGLE-CYLINDER
 AIR-COOLED ENGINES

Compact — powerful — in brilliant modern design — incorporating many important improvements — these new Briggs & Stratton models are perfected products of the world's largest builders of 4-cycle air-cooled single-cylinder engines, resulting from an experience record spanning more than 30 years and a production record of more than 4 million engines.

These new engines set new standards of value, dependability and performance as "preferred power" for machines, tools and equipment used in industry, and construction, by railroads and on farms.

Complete technical information is available on these new Briggs & Stratton single-cylinder 4-cycle air-cooled gasoline engines:

MODEL "9" 3.1 H.P.

MODEL "14" 5.1 H.P.

MODEL "23" 8.25 H.P.

BRIGGS & STRATTON CORPORATION, MILWAUKEE 1, WIS., U.S.A.

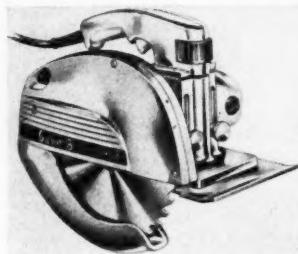


ASPHALT DUCTILITY TESTER—

Can be used for testing all types of bituminous paving and roofing materials in accordance with ASTM specification D-113. Features the use of one temperature-control knob, one lever for pull speed selection, and one lever for start-stop of carriage. Machine incorporates automatic control of bath temperatures from 32 to 100 deg. F., and holds a set temperature within plus or minus 0.5 deg. The Vari-Temp apparatus has three pulling speeds of $\frac{1}{4}$, 1, and 5 cm. per min. Three samples can be tested simultaneously, and a large storage compartment has space for conditioning 8 other samples. Plate glass covers set in chromium-plated frames give undistorted view while testing.—Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill.

STONE ATTACHMENT FOR PAVER—

Attachment for the Adnun black-top paver is used for laying stone or chips, taking full advantage of the 4-wheel-drive design of the Adnun, eliminating slipping and improving traction. Attachment consists of rubber-tired wheels which replace the rollers under the rear of the paver. Device can be attached to units already in service, and is said to eliminate pitting of the rollers when laying coarse stone.—The Foote Co., Nunda, N. Y.



NEW 8-IN. GUILD SAW—The Model A-8 saw weighs $13\frac{1}{2}$ lb., and has sufficient power and cutting speed to handle heavy-duty cross-cutting and ripping, maintenance work, and general carpentry. Tilt attachment enables the saw to be adjusted for any angle from 45 to 90 deg. Abrasive cutting wheels are available for work with tile, metal, etc. Maximum depth of cut is $2\frac{1}{8}$ in. Blade has a $\frac{5}{8}$ -in. standard round hole.—Porter-Cable Machine Co., 1747 N. Salina St., Syracuse 8, N. Y.



● NORTH MUSKEGON, MICHIGAN. Backgrounded by two Fitzjohn units of the North Muskegon Bus Line are (left to right): E. W. Powell, Standard Oil Company; Fred J. Collins, fleet owner; Russell Vance and Arthur Olsen, drivers.

Rolling up maintenance-free miles with

PUNISHING overloads and steep Michigan hills have not kept fleet units of the North Muskegon Bus Line from rolling up record mileage between overhauls.

A 1946 Fitzjohn bus has operated 170,000 miles and a 1947 Fitzjohn, 132,000 miles without a major overhaul.

Mr. Fred J. Collins, owner, gives much credit to Stanolube HD Motor Oil for the economical operation of the two buses. He states: "The fine performance of Stanolube HD in these buses certainly proves to me that this lubricant is tops for heavy-duty engines."

Here are specific Stanolube HD benefits that will keep your fleet units rolling longer between overhauls:

Free rings. An inhibitor in Stanolube HD retards oil oxidation—principal cause of varnish formation and ring sticking.

Longer-lasting bearings. A corrosion inhibitor helps prolong bearing life.

Cleaner operation. The detergent-dispersant action of

**Stanolube HD
Motor Oil**

Stanolube HD holds fuel residues and contaminants suspended in a finely divided state . . . stops surface clogging of oil filters and keeps engine surfaces clean.

A trial of Stanolube HD Motor Oil will prove its advantages. A Standard Oil Automotive Engineer will be glad to help you.

Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY (INDIANA)





New!

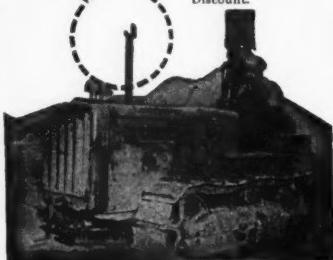
**STOPS MOISTURE FROM FALLING
INTO TRACTOR EXHAUST**

No.	O.D. Exhaust	Retail
1	2 $\frac{1}{4}$ "	\$1.90
2	2 $\frac{3}{8}$ "	1.90
3	2 $\frac{3}{4}$ "	1.90
5	1 $\frac{1}{2}$ "	1.90
55	2"	1.90
5x	1 $\frac{3}{4}$ "	1.90
6	1 $\frac{1}{2}$ "	1.90
66	1 $\frac{1}{4}$ "	1.90
7	2 $\frac{1}{2}$ "	1.90
8	3 $\frac{1}{4}$ "	2.50
9	3 $\frac{1}{2}$ "	2.50
10	3 $\frac{3}{8}$ "	2.50
11	3 $\frac{1}{2}$ "	2.75
115	3 $\frac{3}{4}$ "	3.00
12	4"	3.00
123	4 $\frac{1}{8}$ "	3.00
125	4 $\frac{1}{4}$ "	3.00
14	4 $\frac{1}{2}$ "	3.00

Write Dept. CM.

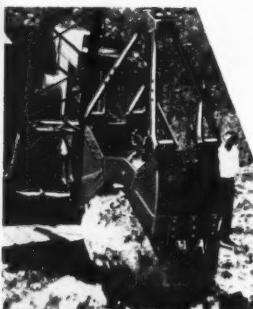
THE CAP THAT DOES NOT FORGET TO CLOSE
Completely automatic — the "RAINCAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof—made of cast aluminum—with bronze bushing—can be installed in two minutes. F.O.B. Waterloo, Iowa.

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Clamps Down**



It's the "Plus" features in a product that contribute largely to outstanding performance and build user satisfaction and profits.

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**THE OWEN BUCKET CO. 6020 Breakwater Ave., Cleveland, O.
BRANCHES: PHILADELPHIA • CHICAGO • BERKELEY, CALIF.**



SNOW PLOW LIQUID WAX—Produces a hard, slick surface off which snow slides easily. Prevents piling up of snow thus reducing breakdowns from overloading and increasing plow speed. Snow-Rem has a high Carnauba wax content and may be applied by brush or spray gun. Dries within 20 min. One gallon of wax covers 250 sq. ft. by brushing, or 300 by spraying.—Speco, Inc., 7308 Associate Ave., Cleveland 9, Ohio.

TILT-DECK TRAILER—Capacity of the new Rogers tilt-deck trailer is 7 tons. Road clearance is 16 in. when the trailer is equipped with 14-ply 8.25x15 tires. The platform measures 16x8 ft. Air or vacuum brakes are optional. A double-acting hydraulic ram cushions the deck when it is being raised or lowered. A 5-ton model, on 7.50x15 tires, is also available.—Rogers Bros. Corp., 220 Orchard St., Albion, Pa.



MOVABLE CRANE BASE—Patented movable base is designed for mounting the upper works of cranes, shovels, or hoes on truck chassis. Sliding base permits the upper revolving unit to be moved forward for crane work and backward for shovel and hoe work. The forward position during crane work increases stability; while the backward position shortens the distance over the corners, which thus increases the radius of work for shovel and depth of trench for hoe work.—Insley Mfg. Corp., 801 N. Olney, Indianapolis 6, Ind.

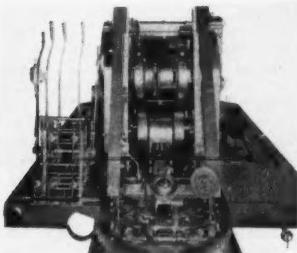
MERCURY CLUTCHES—Series G line of mercury clutches features a choice of demountable pulleys for increased flexibility of installation. These clutches are designed for use on gasoline engines in the $\frac{3}{4}$ - to 15-hp. class. Other features include compactness, automatic operation, smooth pick-up of load, elimination of engine stalling, and protection of engine from excessive overload.—Automatic Steel Products, Inc., Mercury Clutch Division, Can



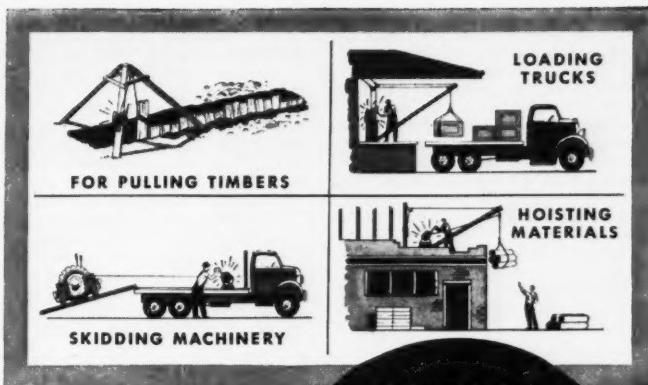
PNEUMATIC CONCRETE PLACER

Production has resumed on the Worthington - Ransome pneumatic concrete placer. This 14-cu.-ft. machine requires 400 cu. ft. of air for 100-ft. shots at the rate of 60 per hr. It can be used to place concrete in subways, tunnels, isolated bridge piers, and other places which are inaccessible.—Worthington Pump & Machinery Corp., Harrison, N. J.

ENERGIZABLE VALVE LUBRICANT — Compressible lubricant, available in bulk or stick form, allows automatic lubrication of pressurized plug valves of the Nordstrom type. Compressing the plastic lubricant creates an "energized" condition which will automatically feed lubricant to seal seating surfaces and fill voids in event of a leak. It is re-energized by adding more lubricant or by turning the lubricating-screw. The Hypermatic lubricant performs in a temperature range of 250 deg. F. Advantages claimed are: reduction of frequency of valve lubrication; valves are kept in state of 100-percent lubrication; and valves are maintained in operable condition without first stopping to relubricate the valve. — Nordstrom Valve Division, Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa.



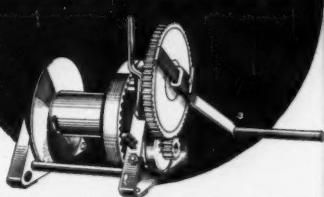
DIPPER TRIPPER; TAGLINE WINDER — Combination power dipper trip and automatic tagline winder is available for new or old "Quick-Way" truck shovels and clamshells. Advantages resulting from use of this unit are: accurate loading and casting without moving boom or machine; automatic tagline pull; uniform, adjustable pull at and below machine level; and instant-acting manual control to manipulate clamshell or grapple. Requires no major changes for installation.—"Quick-Way" Truck Shovel Co., 2400 E. 40th Ave., Denver, Colo.



One man lifts or pulls loads up to 10,000 lbs. with the AMERICAN HANDIWINCH. Simple, rugged, weighs only 95 lbs. Carries easily, sets up anywhere. Cut steel gears, two gear ratios. Has demountable tail yoke. Triple-width drum model also available. Sold everywhere; made by AMERICAN HOIST AND DERRICK CO., ST. PAUL 1, MINNESOTA.

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PANELS FROM WOOD WASTE.—Plywood panels are formed by bonding sawdust, lumber rejects, and shavings with a phenolic resin. The result is a panel board which can be used for concrete forms, interior or exterior doors and walls, and similar uses. Resinwood has a hard smooth surface with a color similar to that of natural pine. It can be drilled, nailed, sanded or subjected to other process, similar to natural wood. It will take a stain or varnish satisfactorily, and paint will adhere to it without checking or becoming discolored.—Rock Island Millwork Co., Rock Island, Ill.

LOAD BINDER FOR FLAT-BED TRUCKS.—Ratchet-type unit securely holds loads of all types on flatbed trucks and trailers. This midget-size ratchet weighs 13 lb. and provides an 8-in. take-up allowing the load to be retightened en route without releasing tension or readjusting the chain. Unit can also be used in replacing turnbuckles in trussing steelwork on building construction, for pulling up wire cable, and for lifting heavy drums. Safe working load, with a $\frac{1}{8}$ -in. chain, is 5,000 lb.; with a $\frac{3}{8}$ -in. chain, 1,860 lb.—American Forge & Mfg. Co., 818 Shore Ave., Pittsburgh 12, Pa.

FINISHING CEMENT.—Suitable for either indoor or outdoor application, new-type finishing cement can be applied over any thermal insulating block or plastic insulating cements. The Powerhouse finishing cement is a dry, loose material of mineral wool-fiber base, with a thermal efficiency approaching that of insulating cements. It has a low shrinkage, and resists temperatures up to 1,700-deg. F. Features include: develops a strong, resilient surface; can be stored indefinitely; readily applied under adverse weather conditions; easily maintained in service. It is adaptable to irregular or flat surfaces in thin or thick layers. Is applied with two or three passes of the trowel.—Baldwin-Hill Co., 500 Breunig Ave., Trenton 2, N. J.

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PRESSURE HANDLE FOR DRILLS

Permits drilling in any position including directly overhead. The pressure handle attaches to any standard portable electric or pneumatic drill. Operator controls drilling pressure of the tool by turning the handle. One end of a feed chain is fastened to the work, the other is placed over the chain sprocket on the handle.—Pressure Handle Co., North State St., Wilkes-Barre, Pa.

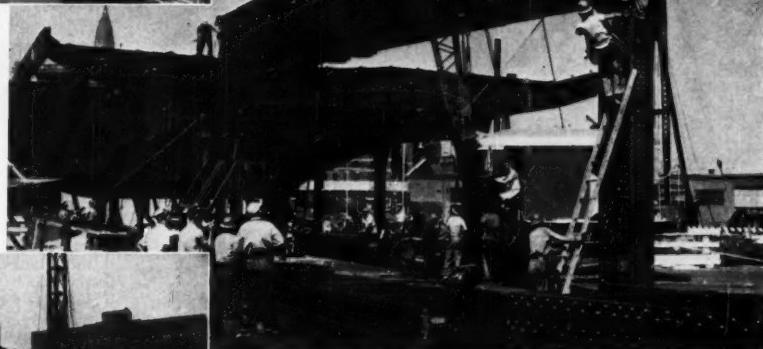
STRUCTURAL-STEEL CALCULATOR

Slide-panel-type calculator saves computing time for problems of stress analysis in the design of structural steel. One operation of the Structural Calculator automatically indicates Id/bt ratio, economical beam selection, bending stresses, axial stresses, column selection, I/r ratios, laterally supported and unsupported beams, and deflections for various load and end connections. The Calculator measures $8 \times 10\frac{1}{2}$ in. and is finished with a protective coating which prevents soiling. An instruction manual with examples is furnished with each calculator.—Calculator Design Service, Inc., 101 Park Ave., New York 17, N. Y.

New Elevated Highway IN MANHATTAN



Looking over the day's work.
Left to right: J. Kinney, superintendent, and J. Tierman, vice-president, P. T. Cox Construction Co., Inc.; W. Lewis, assistant superintendent, E. Happ, assistant section engineer, J. Mancini, section engineer, and G. Tuscher, inspector, all for City of New York.



Cars roll on old highway as Bethlehem H-piles are driven to bed rock.
Part of Stuyvesant Town and Peter Cooper Village in background.



Finished roadway starts to take shape as initial layer of concrete is poured over heavy concentration of Bethlehem Reinforcing Bars.

↑ Easy does it! Bethlehem girder goes into place on north ramp. Heaviest girder on job weighed 90 tons. (At top) Air view, looking north, showing cars on completed roadway. Elevated portion of Franklin D. Roosevelt Drive is 2717 ft long. Skyscrapers of midtown New York visible in distance.

Construction of Stuyvesant Town and Peter Cooper Village, gigantic housing developments adjacent to the East River in downtown Manhattan, posed a serious traffic problem. To enable pedestrians to reach the river front in safety, as well as to provide a non-stop route for motorists using the Franklin D. Roosevelt Drive, the city recently authorized elevation of this heavily-traveled thoroughfare from 15th St. to 25th St. Construction of the four-lane elevated highway was handled by P. T. Cox Construction Co., Inc., and P. J. Carlin Construction Co., both of New York. Bethlehem fabricated and erected the structure, and also furnished H-piles and reinforcing bars.

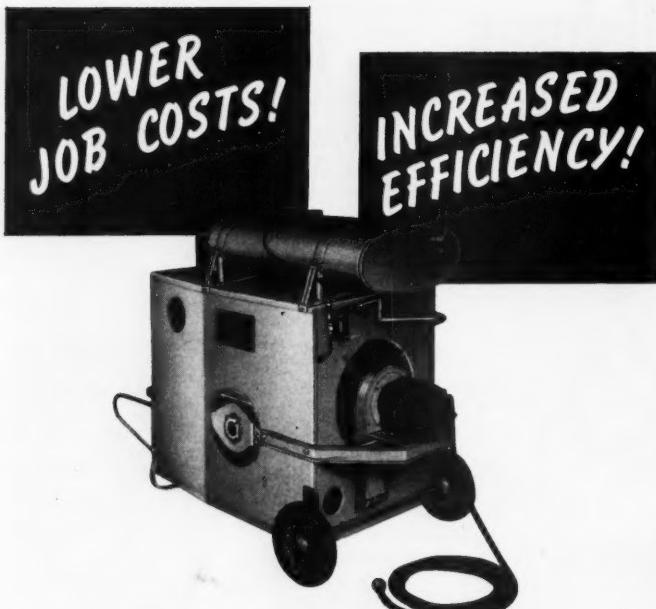
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

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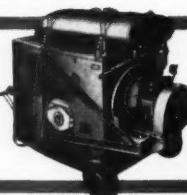
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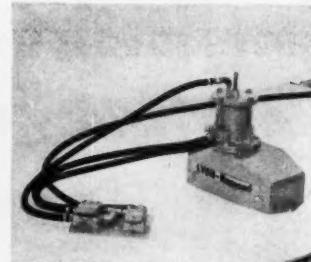


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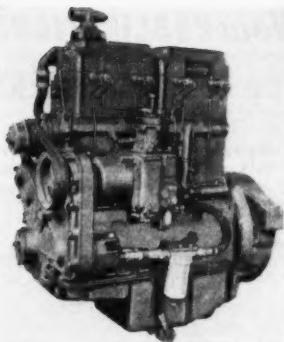
AIR-POWERED PUMP—Hydraulic pump used air as its source of power. It is a single-acting unit in that it makes one stroke of its piston each time the valve, operated by a foot pedal, is opened. The release is operated by another foot pedal. Available in several styles and with several sizes of oil reservoirs.—**Lyon-Raymond Corp., 14552A Madison St., Greene, N. Y.**



MECHANICAL ROCK PICKER—Trailer-type rock picker separates and gathers rocks as small as 3-in. dia. Depth control bar is adjusted by turnbuckles. Hydraulically controlled, the hydraulic pump shown in the illustration is optional depending upon the tractor used. The Jochim picker has 26 spring-steel tines covering an 8-ft. swath.—**Minn-Kota Mfg. Co., 201 Seventeenth St., N., Moorhead, Minn.**



SELF-ROTATING HAMMER DRILL—Hammers and rotates simultaneously to simplify drilling concrete, masonry, or rock. It is of the electromagnetic design and features free-striking piston, automatic safety clutch on the rotating drive which slips if the bit binds or becomes stuck. Percussive hammering can be stopped while the bit continues to rotate to clean the hole. Weighs 38½ lb. and operates on either 110 or 220 v. ac. Drill steels have carbide cutting edges and spiral flutes to clean cuttings out of the hole as the hammer rotates the drill steel.—**Syntren Co., 500 Lexington Ave., Homer City, Pa.**

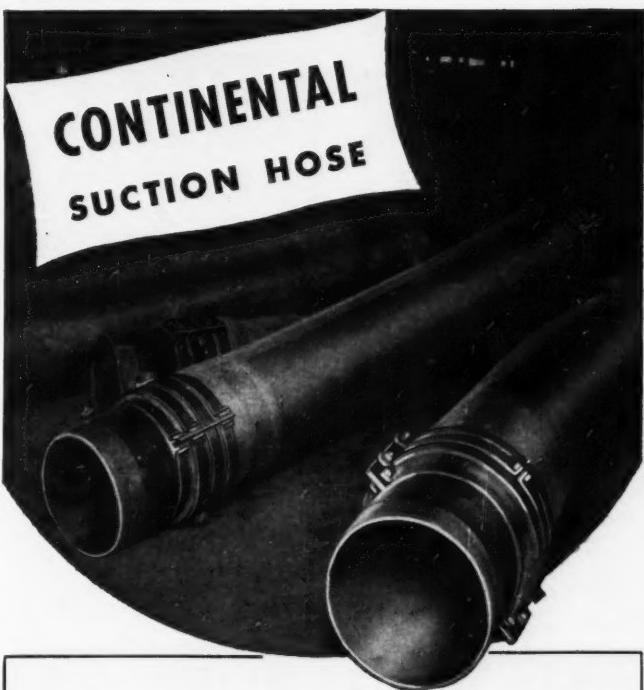


DIESEL RATED AT 110-HP.—Light-weight, compact 4-cylinder diesel engine is rated at 110-hp. at 1,800 rpm. The HR-400 is available in five industrial models, one automotive model, and one marine model. Mounting dimensions for the basic industrial model are 43 7/32x29 1/8 x 47 1/8 in. The HR-400 is equipped with standard two-valve heads, a new increased-flow lubricating system, continuous groove main bearings, standard HR liners and head gaskets, and the exclusive Cummins fuel system.—**Cummins Engine Co., Inc., Columbus, Ind.**

MAGNETIC SEPARATORS — Redesign has resulted in 50-percent increase in magnetic strength and a 30-percent decrease in weight. The Eriez magnetic separators serve to remove tramp iron from materials traveling in chutes and spouts or in pneumatic lines. Sizes range from 4 to 72 in., in increments of 2 in.—**Eriez Mfg. Co., 1054 E. 12th St., Erie, Pa.**



SMALL, COMPACT TRENCHER—Model 92 Baby Digger cuts trenches to 5 ft. in depth and 10 and 20 in. wide. It is mounted on a Cleveland Model T-5 rubber-tired tilt-bed trailer which provides it with a high degree of mobility and maneuverability. Features include: clog-proof crawler tracks; operator-controlled power-shift conveyor giving instant control of the spoil bank; patented Presto-Points for quick and easy replacement of the rooter teeth; and a crumbling shoe which can be swung up and away to permit digging right up to foundations, walls, and trees.—**The Cleveland Trencher Co., 20100 St. Clair Ave., Cleveland 17, Ohio.**



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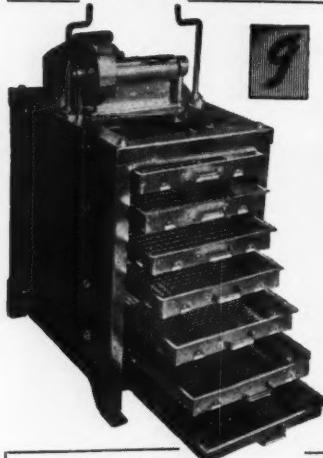


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GILSON Mechanical Testing Screen

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New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use.

DATA ON VENTURI TUBES—Detailed engineering information on Venturi meter tubes is contained in Technical Bulletin No. 110.21-F3. Data is presented on the design of Venturi's, specifications, loss of head in passing through the tube, Venturi formulas for operation, typical calculations, selection of throat size, installation, by-pass installation, and other data. The booklet is complete with photographs and drawings of pertinent facts in the construction, use, and operation of Venturi tubes. A capacity table contains information on capacities in gpm, gal./day, approximate laying length, and shipping weight for various inlet and throat diameters.—**Builders-Providence, Inc.**, 9 Codding St., Providence 1, R. I.

BIT SELECTION GUIDE—Reference chart enables construction workers or installation men to determine the correct size concrete drill bit to use for any given size of pipe, conduit, machine bolt, or concrete anchor. In use, the diameter of the pipe or conduit is located on the chart and the correct size drill bit then appears directly opposite. Or the procedure can be reversed. The chart is designed for hard use, and can be used as a wall chart or carried on the job.—**Tilden Tool Mfg. Co.**, 1995 N. Fair Oaks, Pasadena 3, Calif.

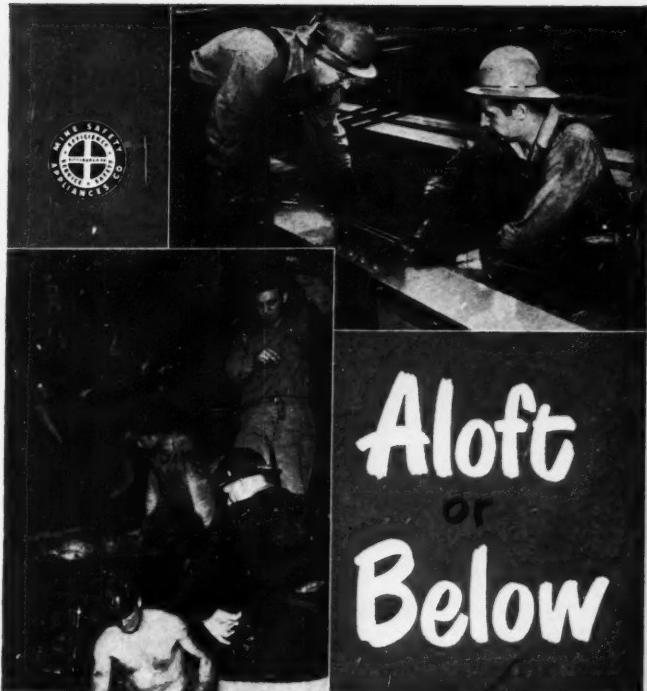
ROOF-FRAMING SUGGESTIONS—Four new suggestions are available on the economical framing of one-story school buildings. The new designs, which show varied methods of covering the spans most generally required in modern classrooms, are intended to help designers in meeting the trend toward the rambling type of school construction. The four suggestions illustrate the use of cantilevered trusses, two saw-tooth-type trussed rafters joined at the ridge, inverted trussed rafters, and cantilevered trusses supporting side roof joists with steel rods. Full information is also available on other types of designs plus data on the connector system of timber construction.—**Timber Engineering Co.**, 1319 Eighteenth St., N. W., Washington, D. C.

ROTARY BLOWERS—Eight-page bulletin covers the construction features and operating advantages of the Type AF rotary positive blowers for pressure or suction service. It is profusely illustrated, including graphs showing operating characteristics under constant, variable, and multi-speed operation. A selection table, covering the capacity and pressure range of each blower size, is included in Bulletin No. 21-B-37, together with a dimension print which gives complete details on all standard sizes. Various driving arrangements are also illustrated. Recommended accessories, including pressure and vacuum relief valves, inlet muffler-filters, and straight-flow mufflers, for suction and discharge lines, are also described.—**Roots-Connersville Blower Corp.**, 900 W. Mount St., Connorsville, Ind.

OPERATION OF TOOL CRIBS—Compilation of written reports indicates how the McCaskey tool-crib control system reduces costs of operation. This 12-p. booklet contains reports of typical savings encountered in various industries. Condensed for quick reading, it is illustrated with amusing and suggestive cartoons.—**McCaskey Register Co., Industrial Division**, 101 W. 31st St., New York 1, N. Y.

ENGINE-DRIVEN AIR COMPRESSOR—The Model 105 Unistage air compressor is described in 4-p. Bulletin No. 4915. This bulletin contains a complete description of the Uni-power engine and the Schramm Pneumastat designed to effect fuel savings. It points out that 90 percent of the engine and compressor parts are interchangeable. Information is provided on five types of mounting—2-wheel spring mounted; 4-wheel rubber-tired, less springs; 4-wheel spring mounted; on skids; and truck mounted.—**Schramm, Inc.**, West Chester, Pa.

BLAST - CLEANING MACHINE—Catalog describes the 48-in. continuous Wheelabrator Tumbblast—an airless, abrasive blast-cleaning machine. The catalog is complete with pictures, drawings, and phantom views of operating parts of the machine. Also described is how the combination of tumbling and longitudinal travel of the work provides thorough cleaning and uninterrupted efficiency; how the work is carried through the blast barrel on an endless apron-type conveyor which constantly tumbles and cascades the pieces; and how the speed of operation is regulated by tilting the mill to the proper angle by means of jack screws.—**American Wheelabrator & Equipment Corp.**, 555 S. Byrkit St., Mishawaka, Ind.



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Within its digging range of a full 5-foot depth and widths from 10" to 20", the CLEVELAND "92" gives you a machine of unsurpassed versatility that you will use and appreciate to the maximum.

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THE MODEL "92"
GIVES YOU RAPID,
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**THE CLEVELAND TRENCHER CO.
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WOVEN-WIRE-SCREEN CLOTH—Feature of Bulletin 113-A (16 pp.) is a set of tables designed to enable the reader to determine at a glance sizes of openings available for a given diameter of wire. Bulletin also contains recommendations for best diameter wire to select for a specific type of service. Enamel-coated screen cloth, a new product which has lengthened screen-cloth life in processing materials which have a combined corrosive and abrasive action, is described in detail.—Robins Conveyors Division, Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.

TUBULAR STEEL WORKHORSE—

Adjustable, tubular-steel workhorse is described in new data sheet. The Handi-Horse is adjustable to varying heights from 24 to 44 in. as a standard model, with other sizes available to specifications. Pre-drilled holes in the top channel bar make it easy to bolt 2x4's into position. The data sheet describes how the adjustable feature permits the unit to be used on uneven ground; lists several recommended applications; and describes the non-skid hard-rubber feet.—Broadway Mfg. Co., Waukesha, Wis.

WATER-WELL SUPPLIES—All the equipment necessary to drill and produce a water well is described in 110-p. booklet entitled "Composite Water Well Supply Catalog." It is designed to serve as a complete reference book for operators' requirements. The catalog classifies the various supplies and equipment listed under 150 general headings.—The National Supply Co., Water Well Dept., P. O. Box 416, Pittsburgh 30, Pa.

LORAIN CRANES IN USE—Full-

color 16-mm. film demonstrates graphically a few of the many ways Thew-Lorain equipment can be used to speed material handling and to lower handling costs. Special emphasis is placed on the use of Thew-Lorains on rubber-tires as travel speed and flexibility are gained. Many types of crane equipment are shown in use, such as magnets, slings, special wood grabs, special tongs, and the usual hook block and clamshell bucket. Showing time of the film is 28 min.—The Thew Shovel Co., Lorain, Ohio.

COMBUSTION SAFEGUARD—Bu-

letin W-1816 describes the Electronic Pyrotrol combustion safeguard, application of Pyrotrol in protecting gas-fired ovens, furnaces, kilns, boilers, dryers, kettles, and other heating equipment from the danger of gas explosions during ignition, operation, and shut-off.—The Bristol Co., Waterbury 91, Conn.

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CF&I

Ask any user...you'll find them everywhere

In scores of industries, users of Wickwire Rope have developed an affectionate respect for its performance, safety and long life. And, for true economy, they use Wickwire's WISSCOLAY® Preformed. It lasts longer—is easier to cut, splice and install. It's kink-resistant and safer to handle. Wickwire Distributors and Rope Engineers, in key cities everywhere, are prepared to render prompt service in meeting your wire rope needs. Wickwire Rope

Sales Office and Plant—Palmer, Mass.

IN THE EAST—Wickwire Spencer Steel Div. of C. F. & I.
500 Fifth Ave., New York 18, N. Y.

IN THE ROCKIES—The Colorado Fuel and Iron Corp.
Continental Oil Bldg., Denver, Colo.

ON THE WEST COAST—The California Wire Cloth Corp.

1030—19th Ave., Oakland 6, Cal.



TRANSPORTATION



LOGGING



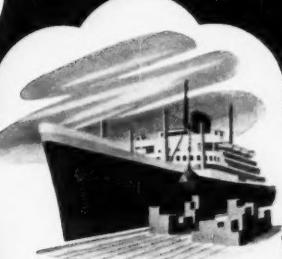
MINING



PETROLEUM



MANUFACTURING



MARINE



CONSTRUCTION

25 YEARS OF PUMPING PROGRESS



25 years ago: Excavating in the dry in swamp mud and clayey sand for a sewerage disposal plant.

Twenty-five years ago the Moretrench Wellpoint System got off to a flying start on a small wet sewer in Hackensack, New Jersey. Ever since, it has been contributing to the engineering achievements of America by dewatering wet excavations so successfully that contractors all over the country count on it to enable them to work with speed—with safety—"in the dry"—free from the fear of water.

Progress was slow at first. Contractors were reluctant to believe that a wellpoint system had at last been perfected that would work in any pervious soil. But as job after job was pumped successfully, word got around that the way to handle wet work profitably, was to predrain it with a MORETRENCH WELLPOINT SYSTEM.

Thousands of jobs have been dewatered by Moretrench—sewers, dams, bridges, buildings—projects of every type. Some were difficult, some easy. Each contributed in some way to building a greater America. Each added to our background of experience.

For true pumping achievement, Moretrench reviews with pride its long list of successfully dewatered jobs, and looks forward to serving the construction industry for many years to come by enabling contractors to work with progress and with profit . . . "in the dry".

MORETRENCH CORPORATION

90 West St.
New York 6

4900 S. Austin Ave.
Chicago 38, Illinois

7701 Interbay Blvd.
Tampa 9, Florida

315 W. 25th St.
Houston 8, Texas

Rockaway
New Jersey

KARBATE PIPE; FITTINGS—Installation manual describes Karbate brand pipe, fittings, and connections, as well as the cements used to bond these products. This Catalog Section No. M-8800B, is a companion piece to the company's standard Catalog Section No. M-8801. The installation manual features a description of the ease and simplicity of using Karbate supplies.—National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.

HOW TO USE SHELLAC—Accurate and interesting information on how to use shellac is available in an 18-p. handbook. This bulletin describes the properties of shellac, recommended uses, how to thin it, how to cut to proper consistency, and how to apply it. The booklet also describes staining and color, use of shellac as a base for wax, varnish, paint or lacquer, and other uses.—The Shellac Information Bureau, 65 Pine St., New York, N. Y.

ABRASION-RESISTANT ALLOY—Uses and advantages of Thermalloy HC-250 are listed in 6-p. folder. Feature of the folder is a description of the physical properties of this abrasion-resistant material. Several case histories describing the metal in actual field service are another feature of Bulletin T-176. The bulletin also contains information on the microstructure of HC-250, how it is supplied, facts on distortion, its machinability, and cost per operating hour.—American Brake Shoe Co., Electro-Alloys Division, 230 Park Avenue, New York 17, N. Y.

WIRE ROPE SOCKETS—Bulletin No. 1 sets the standard for wire rope sockets as compiled by the wire-rope industry's engineers. The bulletin contains information on both open and closed sockets. Dimensions are provided for sockets for wire rope with diameters from $\frac{1}{4}$ to 2% in. Basis of design is: the maximum stress in sockets not to exceed 48,000 psi. when rope used with them is stressed to listed catalog strength.—Wire Rope Institute, Shoreham Bldg., Washington 5, D. C.

RED DEVIL TOOL CATALOG—Complete Red Devil line of tools, machines, and specialties is listed in Catalog No. 20. This catalog classifies all the tools in seven divisions—glaziers' tools, painters tools and cutlery, wood and other hand scrapers, paint conditioners, auto specialties, floor polishers, Sanders and edgers, and hardware specialties and machines. Of especial interest are the how-to-use pages, the merchandising pages, and the valuable operation data sprinkled throughout the 84 pages.—Red Devil Tools, Irvington 11, N. J.

POUR CONCRETE PIERS OR COLUMNS

Up to 24"
in diameter

With

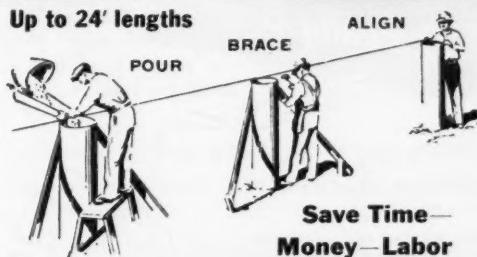


**laminated
fibre tubing**

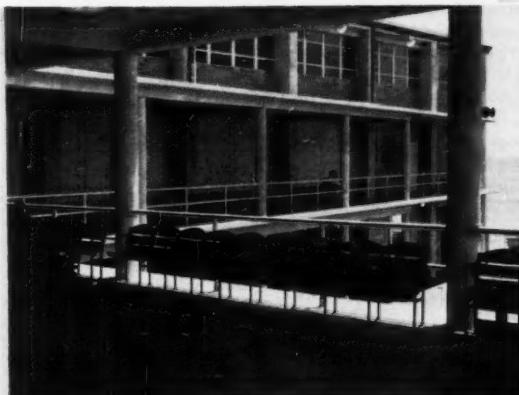


SONOTUBES arrive at the job ready to use in lengths up to 24' — cut to any desired lengths on the job, by hand.

Up to 24' lengths



**Save Time—
Money—Labor**



Perfect columns formed with labor-saving SONOTUBES. Forms can be left on or easily stripped off.

For one-time use 3" to 24" I.D.

Write for delivered prices

SONOCO PRODUCTS COMPANY
HARTSVILLE S.C. MYSTIC, CONN.
GARWOOD, N.J. LOWELL, MASS.



*"Speaking of truck shovels.....
Why did you buy a MICHIGAN?"*



What other $\frac{3}{4}$ or $\frac{1}{2}$ yard truck shovel has all these features?

- . . . cast steel turntable with deck and side-frames cast in one piece, insuring constant true alignment of shafts and bearings; longer trouble-free service.
- . . . all shafts splined and ball bearing mounted plus machine-cut gears and sprockets for smoother, longer-lived operation.
- . . . interchangeable turntable shafts, bearings and clutches.
- . . . tapered hook rollers, ball-bearing mounted, easily adjustable for wear.
- . . . air-ram operated clutches that are fingertip controlled—that are fast, positive, dependable.

From wheels to boom-point you get more fast-production, cost-cutting features in a MICHIGAN. That's why I selected MICHIGAN . . . and it's why I say "I'll get the most for your money in a MICHIGAN!"

Write for your copy of Bulletin 100, "On the Job with MICHIGAN," showing MICHIGAN Truck Shovels on jobs like yours.

MICHIGAN

MICHIGAN POWER SHOVEL COMPANY
495 Second Street, Benton Harbor, Michigan, U.S.A.

DID YOU KNOW
you can buy
a brand new
MICHIGAN
TRUCK CRANE
complete with chassis
for as little as \$10,250
F.O.B. factory!

DRAMA OF PORTLAND CEMENT

Cement mills in operation, as well as many notable concrete structures, are shown in a 30-min. sound-and-color 16-mm. motion picture entitled "The Drama of Portland Cement." Every step in the making of portland cement, from quarrying or dredging raw material to the packing operation, is shown. The picture depicts the invention of portland cement by Joseph Aspin; describes all the processes in cement making; shows how scientific research is used to improve the product; and shows the application of portland cement in concrete highways and buildings. The film is available without cost.—Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill.

METALLIZING APPLICATIONS—

Prevention of corrosion by metallizing processes is explained in detail in Bulletin 62. This catalog tells how to use metallizing on tanks and degreasers, on bridges and structural steel, on barges and dam gates, and similar surfaces subject to corrosion. Bulletin describes the metallizing process in detail, as well as showing its actual application.—Metallizing Engineering Co., Inc., 38-14 30th St., Long Island City 1, N. Y.

ELECTRICAL TRACTOR CONTROLS—

Informative booklet explains operation of LeTourneau system of electrical control. Booklet O-215 employs cross-section and diagrammatic views to show operation and construction of component parts. Cartoon drawings depict what happens when the electrical system is in operation. Booklet is written in easy-to-understand style.—R. G. LeTourneau, Inc., Peoria, Ill.

LOCOMOTIVE CRANE —

Bulletin describes a 10-ton diesel locomotive crane recommended especially for lighter-duty work. Its features include minimum weight, moderate first cost, and efficient, economical operation. Catalog No. 600 L-7 contains illustration of the Model 410 in operation, and front and rear views of the machinery deck with the cab removed. Specifications on the final page list capacities with a 40-ft. boom, travel speeds and drawbar pull, hoisting speed, slewing speed, and the 72-hp. diesel power unit.—American Hoist & Derrick Co., 63 Robert St., St. Paul 1, Minn.

MOTOR GRADERS—

Use of a motor grader in shaving blacktop from a bridge deck without injuring the wooden flooring is featured in Caterpillar Bulletin No. 12255. This 16-p. catalog also shows motor graders in use casting ditched materials to center of roads, mixing and spreading asphalt surfacing material, back sloping, snow plowing, and ditching Caterpillar Tractor Co., Peoria 8, Ill.

Costs Come Down When

CLYDE PORTABLE BUILDERS TOWERS *Go Up!*

Clyde Portable Builders Towers are self-raising up to 100 feet.

10 foot sections are rigid. Conveniences, easy to handle.

Concrete blocks substituted for elevator platform.



TIME and material saved in the erection and dismanteling of towers increases your margin of profit and Clyde Portable Builders Towers do just that! These rigidly constructed towers are easily assembled and put in operation in a fraction of the time necessary to erect a costly timber tower. Multiply this saving by two. Add the cost of replacement of timbers on old style towers. Clyde Portable Builders Towers save you valuable man-hours and many dollars of cold cash on every job. They handle ton loads and better at speeds up to 178 feet per minute.

Investigate the many advantages and the marked savings a Clyde Portable Builders Tower offers YOU! Write today for complete information.

Clyde and only Clyde offers you all these advantages

½ Yard concrete hopper bucket with controlled dumping

Trailer wheels for towing instead of loading tower on truck.

Safety brake for use with either elevator platform or concrete bucket.

A 2000 lb. capacity tower derrick for extra hoisting service.

Tower is easily and quickly lowered and dismantled for transport. May be loaded on truck or towed on trailer wheels which attach to tower base.



Tower is quickly and easily assembled, and cable reeved while tower is on the ground. Only two men are required to handle 300 pounds 10 foot sections.



Tower hoist quickly and easily raises tower into position. No outside crane is needed. Clyde Portable Builders Towers are fast, safe, convenient to erect.



Subsidiary of Barium Steel Corp.

CLYDE

CLYDE IRON WORKS, Inc.

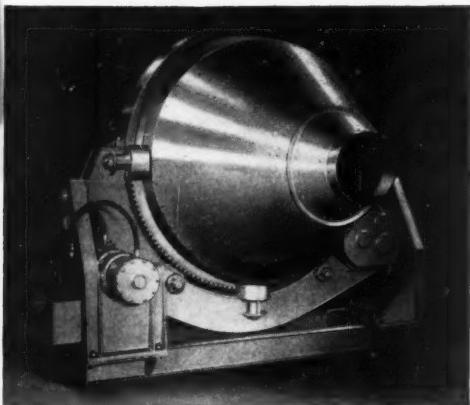
DULUTH, MINNESOTA



**Both Closing Door Seal and Bearing Are
Greased at Every Turn of Mixer Drum**

You'll like this amazing Smith development — an automatic greaser that enables you to operate your Smith-Mobile Truck Mixer or Agitator at top efficiency. The new device injects a small amount of grease at every turn of the mixer drum, greasing both the closing door seal and the door bearing. It's fully automatic. Can be applied easily to any current model Smith-Mobile now in production.

You merely turn a set screw to regulate the amount of grease. Reservoir holds enough for several days' operation. Assures continuous supply of grease where needed. Cuts greasing job by about 80%. Results in more payloads per day and lowest maintenance cost.



**SMITH TILTERS and SMITH-MOBILE
AGITATORS — the Combination that
Gives You Bigger Payloads**

You can operate your mixing plant more profitably by using SMITH TILTERS for mixing the concrete and SMITH-MOBILE AGITATORS for delivering the mixed concrete to the job. Smith Tilters have a smooth non-lift mixing action. They give you complete control of the discharge. You can discharge the entire batch in a few seconds, or pour it out slowly, without any segregation. All sizes available — 1, 2, 3, 4, 5 or 6 cubic yards per batch. Smith-Mobile Agitators have a long, proven record of performance. They are designed to load and discharge at record speed, even very dry or low slump concrete. Built of the toughest, wear-resistant materials. Conform in every way to NRMCA standards. Write for literature.

The T. L. SMITH COMPANY • 2851 N. 32nd Street, Milwaukee 10, Wis., U. S. A.

SMITH MIXERS
FOR BIG CONCRETE PROJECTS AND READY-MIX PLANTS

SALES AND PARTS SERVICE

A department devoted to manufacturers' activities involving the sale and distribution of products and parts, and service facilities. Designed to give the reader information that will enable him more readily to purchase products and parts and to service his equipment.

Distributor Appointments

Lima Shovel & Crane Division, Lima-Hamilton Corp., Lima, Ohio: Six new sales representatives: The Flack Equipment Co., P. O. Box 1526, Toledo 4, Ohio, will cover the Toledo sales area; John C. Louis Co., Inc., 511 W. Platt St., Baltimore, Md., will cover the District of Columbia, Maryland, Delaware with the exception of New Castle county, and the counties of Arlington, Fairfax, and Loudoun in Virginia; The Buran Equipment Co., 777 100th Ave., Oakland, Calif., will cover the northern California territory; Metalweld, Inc., 26th and Hunting Park Ave., Philadelphia 29, Pa., will cover the Philadelphia sales area; Scott Machinery Co., 84 S. Main St., Concord, N. H., will cover New Hampshire; and Stockberger-Seastron, Inc., 2200 N. Mannheim Road, Melrose Park, Ill., will cover the Chicago area.

The Euclid Road Machinery Co., Cleveland 17, Ohio, announces the following changes: Euclid-Kentucky, Inc., 3900 Crittenden Drive, Louisville, Ky., has taken over distributorship for Kentucky, replacing Brandeis Machinery & Supply Co., Inc.; Reid-Holcomb Co., 1815 Kentucky Ave., Indianapolis, Ind., is being assigned the southern Indiana territory formerly served by Brandeis; Euclid Sales & Service, Inc., 5231 Manchester Ave., St. Louis 10, Mo., take over southern Illinois counties formerly covered by Brandeis; Clark-Wilcox Co., 118 Western Ave., Boston 34, Mass., has been assigned the state of Maine and parts of New Hampshire, formerly assigned to Eastern Tractor & Equipment Co., plus the state of Vermont. This is in addition to their present coverage of Rhode Island, counties east of and including Worcester in Massachusetts and several counties in New Hampshire.

New Sales Outlets

(Agencies, Branches)

Fenton Steel Works, Seattle, Wash.: Transfers Raymond M. DesCamp to new San Francisco office located at 607 Market St.

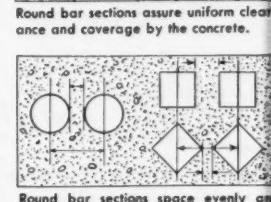
Permanente Cement Co., Oakland 12, Calif.: Has reopened its Duwanish plant at 5975 E. Marginal Way, Seat-
(Continued on page 136)

For the BEST ANCHORAGE don't put "square pegs" in "round holes".



USE LACLEDE MULTI-RIB REINFORCING BARS . . .

The advanced design of Laclede Multi-Rib Bars rolled to A.S.T.M. A 305-47T specification with round bar sections in all sizes assures improved anchorage with uniform concrete cover. Multi-Rib Bars have a high safety factor by combining anchorage ability well in excess of the A.C.I. recommendation of .10 fc with 65,000 p.s.i. yield point steel.



Write us about specifying
LACLEDE MULTI-RIB BARS on your jobs.

LACLEDE STEEL COMPANY

St. Louis, Mo.



Producers of
Construction Steel

Stang

For
KNOW-HOW
•
ENGINEERING
•
SUPERVISION
•
EQUIPMENT
•
to keep jobs
DRY

**WELLPOINT
SYSTEM**

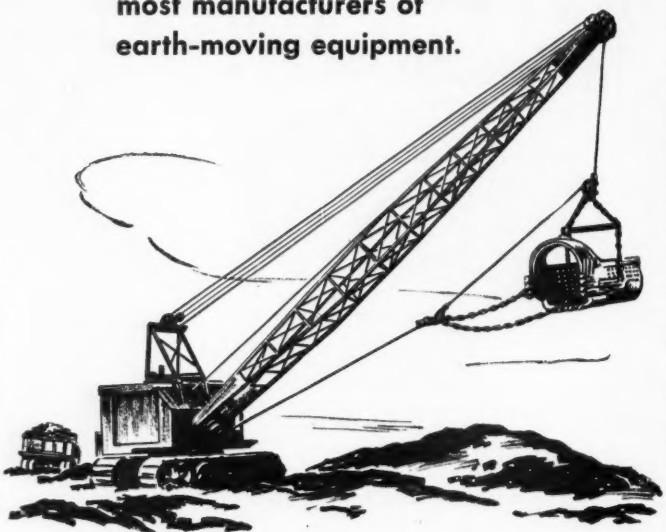
The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.

JOHN W. STANG CORPORATION

2 Broadway 2123 S. 56th St. 8221 Atlantic Ave.
New York 4, N. Y. Omaha, Nebr. P. O. Box 631, Bell, Cal.

FIRST WITH MANUFACTURERS...

J-M INDUSTRIAL FRICTION MATERIALS
are specified as original equipment by
most manufacturers of
earth-moving equipment.



FIRST WITH OPERATORS...

Operators who want to keep maintenance costs low know that JOHNS-MANVILLE FRICTION MATERIALS are easy to wear in, hard to wear out.

If Johns-Manville materials are right to start with... they must be right to stay with. When you order replacements, remember that Johns-Manville says "stop" and "go" to more tonnage than any other friction materials... see your Johns-Manville Friction Materials distributor or write Johns-Manville, Box 290, New York 16, New York.

Johns-Manville
INDUSTRIAL FRICTION MATERIALS
No. 1 With Leading Manufacturers



(Continued from page 135)
tle, Wash. Pacific Northwest headquarters are also shifted to the Duwamish location.

Protective Coatings Division, Pittsburgh Coke & Chemical Co.: Has opened a new office at 711 Thompson Bldg., Tulsa, Okla., to serve the central midwest. Frank E. McNulty is manager of the new office.

Chain Belt Co., Milwaukee: Has opened a new warehouse in conjunction with expanded facilities for the Dallas District Sales Office at 1611 Dragon St., Dallas, Tex.

Gar Wood Industries, Inc., Wayne, Mich.: For sales and service of products of the Findlay Division: a new Chicago Machinery Branch at 301 W. 37th St., Chicago, Ill. R. M. Ashley is manager.

Mack Trucks, Inc., New York City: Charles F. Dedon is named manager of the Mineola Direct Factory Branch.

Sika Chemical Corp., Passaic, N. J.: L. B. Keen is the company's sales representative in Rhode Island and Connecticut.

Sales Personnel

Binks Mfg. Co., Chicago, Ill.: For complete line of spray painting and finishing equipment: E. J. Cremer will serve as manager of the new sales and engineering office located in the Empire State Bldg., New York City.

Wright Hoist Division, American Chain & Cable Co., Inc., Bridgeport, Conn.: New sales manager is S. J. Woodworth. He succeeds A. R. Haskins.

Aluminum Co. of America, Pittsburgh, Pa.: Philip T. Coffin is manager of pig and ingot sales, and manager of the warehousing division.

SKF Industries, Inc., Philadelphia, Pa.: Emerson D. Ogle is appointed manager of the industrial sales department to succeed C. D. Cummings.

Franklin Steel Division, Borg-Warner Corp., Stanley E. Cobblewick is sales manager of the division which produces concrete reinforcing bars, steel fence posts, and similar products.

Flexible Tubing Corp., Branford, Conn.: Frederick K. Daggett will serve as manager of distributor sales for the Spiratube line of flexible tubing.

Osgood Co. and The General Excavator Co.: Earl R. Herb is district sales

5 BASIC TYPES OF



WRITE
FOR THE
CATALOG
TODAY

Choose the one that most nearly meets your needs and ideas. We'll develop a trailer.

"tailored" to conform to your ideas, adapted particularly to your tractor and efficiently designed to your specific kind of hauling.

Export Office: 50 Church St., New York 7, N. Y.
Cable Address: "Brosites"

ROGERS BROTHERS CORPORATION
220 Orchard Street
ALBION, PA.
EXPERIENCE builds 'em
PERFORMANCE sells 'em



Shunk
MANUFACTURING
COMPANY
ESTABLISHED 1854
BUCKEY, OHIO

manager for North and South Dakota, Minnesota, Wisconsin, Michigan, and the northern halves of Indiana and Illinois. Headquarters will be located in Milwaukee.

Tyson Bearing Corp., Massillon, Ohio: For regional sales manager for the midwest area: George M. Lange. For regional sales manager of the eastern territory: Robert R. Flaisig.

The Thew Shovel Co., Lorain, Ohio: E. Barrett (Barry) Schlenk is direct factory representative, attached to the New York office. Schlenk will handle export sales and national accounts in the New York area.

NORDBERG MANUFACTURING CO., Milwaukee, Wis.: Frank O. Walsh, Jr., appointed sales representative of heavy machinery division in Southeastern territory with offices in Volunteer Building, Atlanta, Ga. He succeeds B. C. Fenell, retired.

Pacific Car & Foundry Co., Renton, Wash.: For field representative in California and southwest U. S. territory, Steve Drovetto.

Kerrigan Iron Works, Nashville, Tenn.: For sales of its Weldforged grating: D. D. (Don) Connors, 274 Madison Ave., New York City.

Buffalo - Springfield Roller Co., Springfield, Ohio: James F. McTeague is named assistant sales manager.

Russell Mfg. Co., Middletown, Conn.: Has purchased the Howard Asbestos Co. of Northfield, Vt., manufacturers of asbestos yarns for automotive friction materials. Russell manufactures the Rusco line of brake linings and clutch facings.

Mid-States Welder Mfg. Co., Chicago, Ill.: New corporation takes over the manufacture of welding equipment formerly produced by the Mid-States Equipment Corp. New plant is located at 6025 S. Ashland Ave.

YALE & TOWNE MANUFACTURING CO., New York: Mark A. Miller appointed sales representative of Stamford division for locks, builders' hardware and door closers in states of Virginia, West Virginia and Kentucky. He will be located in Salem, Va.

MACK TRUCKS, INC., New York: John G. Caley appointed district manager of direct factory branch at Birmingham, Ala.

HARNISCHFEGER CORP., Milwaukee: A. J. Rinnander, formerly with Chicago Pneumatic Tool Co., has joined Hamischfeger organization

(Continued on page 138)

No other instrument gives you

SO MUCH PROTECTION!



NOTICE the leveling screws on the instrument leveling head above. See how they are always totally enclosed — regardless of their position "in" or "out". This means all dust and dirt are sealed out — their precision sealed in.

This is just one of the many extra protective refinements, extra features that guarantee you extra-long life and super precision results with David White Instruments. There are other things too — the waterproof compass box, the overall weatherproof morocco finish — coated optics — hand-fitted, anti-friction, virgin hard, bell metal centers — plus the David White improved plate levels with counter adjusting springs.

Yes, for instruments that guarantee you the extra in precision and long life you want — it's David White . . . makers of finest quality instruments for over 40 years. For detailed information about the complete David White line of Transits, Universal Level Transits, Levels, Theodolites and engineering supplies, write today for Catalog No. 1048.

We offer the most expert Repair Service—on all makes of instruments.



343 West Court St.
Milwaukee 12, Wis.

MADESCO BLOCKS

stand the gaff

Check your
tackle blocks
NOW!

It pays to service your tackle blocks in the off-season—check the sheaves, pins, bushings, lubrication, etc. MADESCO Auto-Lub (Automatic Lubrication) blocks require no further care. MADESCO blocks are available in a complete line—many are ideal for construction work.

We shall be glad to work with you if you have a special problem.

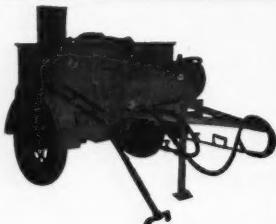
Send for
complete
catalog . . .

A quarter
century
of service



wire rope
blocks

MADESCO
TACKLE BLOCK COMPANY
EASTON, PENNSYLVANIA



HEATING KETTLES FOR ASPHALT AND TAR

Fire Proof — Oil Burning
Hand and Motor Driven Spray

Other Products

CONCRETE VIBRATORS

Gasoline Engine and
Electric Motor Driven Models

FRONT END SHOVELS

For Industrial Tractors

AGGREGATE DRYERS

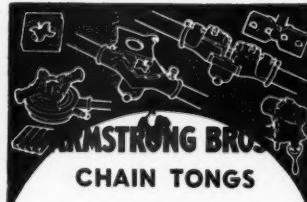
for Stone and Sand

ASPHALT PLANTS

Portable — Stationary

Write for Circulars

White Mfg. Co.
ELKHART INDIANA



"ARMSTRONG Bros." Chain Tongs come in "Standard" & Reversible jaw and "J-J" types—in sizes for every need. Their drop forged jaws have millions of rivets and are hardened, tempered and tested for wearing qualities. They have large bearing lugs that give extra bearing on the handles to which they are firmly held by a large hardened steel bolt. The handles are forged and heat treated to give correct balance of stiffness and spring. Shackles are drop forged and chains proof-tested to 2/3 catalog strength (3,000 lbs. to 40,000 lbs.)

Write for NEW S-48 Catalog just released.

ARMSTRONG BROS. TOOL CO.

3234 W. Armstrong Ave., Chicago 30, U. S. A.

Eastern Whse. and Sales:
109 Lafayette St., New York 12, N. Y.

Pacific Coast

Western Sales Office:
1275 Mission St., San Francisco 3, Calif.



(Continued from page 137)
to supervise field activities, Zip-Lift hoist distributors and sales on a national basis, under direction of E. W. Potratz.

RICKKRAFT CO., Chicago: Lester R. Wroble appointed assistant sales manager for company's reinforced building papers and road-curing blankets.

COLUMBIA STEEL CORP.: O. L. Pringle elected vice-president in charge of sales, succeeding the late Frank B. DeLong.

New Plants and Offices

Koehring Subsidiaries; Parsons Co., Newton, Iowa, has added 16,000 sq. ft. of space. C. S. Johnson Co., Champaign, Ill., has added 22,000 sq. ft. of production floor space and 6,400 sq. ft. of stockroom and shop office facilities.

Link-Belt Co., Chicago, Ill.: New district sales office is located at 422 Board of Trade Bldg., 301 W. 1st St., Duluth, Minn. John E. Morrison is district manager in charge of the new office.

Coco Steel Products Corp., Chicago, Ill.: Work has started on \$400,000 plant in North Birmingham, Ala. Carl Erickson is Birmingham manager.

William F. Klemp Co., Chicago, Ill.: For production of structural steel footwalks: a new plant at 7700 Wallisville Road in Houston, Tex.

LINDE AIR PRODUCTS CO., New York, N.Y.: Recently completed oxygen distributing and acetylene producing plant at Fargo, N. D., including warehouse for distribution of calcium carbide.

Safe

Construction

Procedures

(Continued from page 64)

gloves always. Stack properly to avoid injury when handling. Always remove nails and bars or place where they are not exposed.

MATCHES AND PERMITS—Available at store-room. To be returned immediately after use or expiration of permit.

(Continued on page 140)

It takes High Strength Steels

to keep equipment like this on the job

- The world's biggest, toughest, most powerful and fastest operating construction equipment is made in America.

When it went overseas during the war and showed what it could do, foreign engineers gasped in amazement.

The unusual thing about these American-made heavy-duty power shovels, bulldozers, scrapers, trailer trucks and other mechanical earth-movers is not solely their ability to move so fast and handle record-breaking tonnages so easily, but the fact that they can keep on doing the seemingly impossible day after day.

The secret of their extraordinary stamina is the widespread use of high strength steels in parts that take a beating.

By using stronger, tougher steels like U·S·S COR-TEN, U·S·S MAN-TEN or U·S·S MANGANESE-NICKEL-COPPER in bodies, frames, and structural members, equipment builders have been able to attain super-strength where needed, have added unusual resistance to shock, abrasion, wear and fatigue. And frequently, with the experienced help of our metallurgists, they have, at the same time, reduced deadweight and lowered manufacturing costs.



Here's why it pays to use U·S·S High Strength Steels

1. With rolled U·S·S High Strength Steels you can increase strength and rigidity—without increasing weight.
2. You can reduce weight at low cost—without reducing ability to withstand maximum requirements of earth-moving equipment.
3. Their use insures higher resistance to shock, impact, wear and atmospheric corrosion.
4. Their formability and weldability make fast, easy fabrication possible.
5. They have behind them a record of successful application unapproached by any other steel of similar type.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO • CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO • NATIONAL TUBE COMPANY, PITTSBURGH • TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST • UNITED STATES STEEL EXPORT COMPANY, NEW YORK



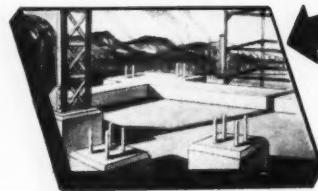
U·S·S HIGH STRENGTH STEELS

U·S·S COR-TEN • U·S·S MAN-TEN • U·S·S MANGANESE-NICKEL-COPPER

UNITED STATES STEEL

9-900

Seal it tight — Once and forever



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(Continued from page 138)

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Promptly remove, barricade, or bend down all nails. Tie back, mark or guard all wire, rods, and reinforcing steel, especially if exposed to foot traffic.

PAINT—Avoid holding on to slippery surfaces or newly applied paint when in the air. Wear respirator in spray painting. Use strong handles on paint buckets. Always plan for scaffolding or safe handling of the job—high or low. Beware of dense paint fumes.

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SHEET METAL—Wear gloves when carrying. Store compactly, clean up ragged edges and keep out of walkways. Hoist and lower material and scraps with rope. Take precaution with hot irons, flux acids and fire pots. Be careful while operating sheet metal tools and machinery.

STEEL PLATE—Handle cautiously to avoid sprains, strains, dropping on fingers and toes. Store out of the way.

STRUCTURAL SHAPES AND RIVETS—Handle structural shapes with power equipment when possible. Check all rigging equipment (all crafts). Use goggles when backing out rivets or when riveting on the ground. Rope off area where riveting. Avoid dropping bolts, nuts, or tools and equipment. Be ware of hot rivets.

TARS AND HOT LEAD—Carry hot materials in ladle with ladle to one side instead of in front of you. Vent fumes, if indoors. Watch the pot for fire control and sparks. Keep clear to avoid burns or scalds. Inspect equipment before each use (gages, valves, and fuel lines). Check your fire protection equipment before starting up.

WATER-TRENCHES AND SHORING—Inspect all ditches and trenches and pits after heavy rains and check shoring at least twice each day. Follow trench standards for shoring when used. Be careful of hidden nails in water pools. Be careful to avoid electric shocks in

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damp or wet places. Avoid all water holes. They may be dangerous.

Safety Regulations ... Equipment

BELT SHIFTERS—Always shift belts with shifter—not by hand.

COMPRESSORS—**HOSE**—Check safety valves and receiver drain. Always check couplings. Use air hose for air only or combination hose, if available. Do not use steam or water hose for this service. Keep welder's cable, hoses and all temporary lines 6 ft. 6 in. in air over passageways. Inspect as used.

ELEVATORS—Operation of material towers and elevators.

Make one man responsible for signals at each end of operation. Use standard bell signals. Use gates at all temporary openings and mark clearly. No passengers on elevators—materials only. To be guarded and properly manned at both ends. Inspect all power equipment daily if in use: tower, cables, hoist engine, brakes, etc.

HOISTS, Power—To be manned by capable operator, to be anchored down, and posted with bell signals.

LADDERS, STRAIGHT AND EXTENSION—To be tied at the top or held at the bottom. Keep foot of ladder one-fourth of its length from the object you lean it on. Always engage snap spreaders on step ladders. Keep level—don't lean out.

MACHINES, Shop-type equipment for: carpenter, lead burner, millwright, pipefitter, tinsmith, welders, power house, machine shop, electric, etc. All to be guarded before and during use. Inspect daily before use, for cutting, fire and electrical hazards. See that all temporary cranks and wrenches are removed before starting up. Do not attempt to remove material or correct defects of operation, on machines or tools while under power or in motion.

PRESSURE VESSELS AND LINES—Mark clearly with signs under pressure. Check foreman for Hydrostatic test regulations.

MOTOR VEHICLES—Stop at
(Continued on page 143)

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RED MEANS DANGER!**



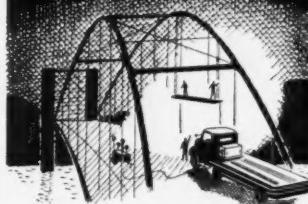
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Columbus, Ohio

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RANSOME DIVISION, Dunellen, N. J.

THE T. L. SMITH COMPANY

Milwaukee, Wis.

(Continued from page 141)
crossings marked "Stop." Watch all intersections. Walk facing traffic. Ride trucks or trailers cautiously. Mount and dismount carefully when vehicle is not in motion.

SAFETY SCAFFOLD PLANK should be 2x10 in. by 8 ft.; 2x10 in. by 12 ft.; 2x10 in. by 16 ft.; and 3x10 in. by 16 ft., straight grained spruce, painted 12 in. each end. (12 in. maximum overhang on any scaffold.) In absence of safety planks use only class "A" lumber for any span or temporary decking and supports.



SAFETY SIGNS SHOULD ATTRACT attention of workmen and not appear as just another paper on bulletin board. Here is a typical Du Pont three dimensional sign which is portable enough to be kept in a concentrated work area.

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SCAFFOLDS—Only three types of scaffolding advisable: (1) Carpenter's horses single, or in pairs decked with safe planks; (2) A-frames single or in pairs (do not stand on top rung). (Two planks wide preferable, two planks wide and two planks thick for heavy loads.) "A" ladders—one plank wide permissible; (3) Patented tubular scaffolding or safeway scaffolding decked with safety plank. (Toe boards and chicken wire, as needed.) Chairs, boxes, barrels or anything except the above are not safe.

TAR POTS, LEAD POTS—Pressure fire vessels to be guarded against leaks, overheat, and inflammable vapors. Guard the area or local materials from fire hazards.

TANK WORK PROCEDURE—Boil out, if used previously. Ladder to enter, safety belt on man entering. Possibly air mask or air pump or both. Open electric circuits by removing fuses and locking switch boxes, or disconnect belt or shaft

(Continued on page 144)

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HD
BELT FASTENERS
AND RIP PLATES

**FOR HEAVY CONVEYOR
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Flexco HD Fasteners make a tight, butt joint of great strength and durability . . . distribute the strain uniformly. Operate smoothly over flat, crowned or take-up pulleys. Made of steel, Monel, Everdur and Promal.

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ADAPTER
FULL DEPTH CONCRETE PAVING VIBRATOR

(Continued from page 143)
supplying power. Helper as lookout outside tank, always. Blank off pipe lines connected to tank. Pick thin men to enter tanks, 18-in. minimum diameter manhole; otherwise check Safety Section.

TESTING EQUIPMENT—Use hydro-static procedure according to Standards. Mark lines, valves and tanks under test in approved manner.

TOOLS—Check condition of all hand tools daily. Only A-1 condition acceptable. Guard against theft. Do not abuse, abandon, or lose any tools. Learn how to use the specific tool so as to prevent skinned knuckles, back sprains, etc.

TRACTORS, BULLDOZERS, CRANES—Do not speed, or risk overturning on broken or sloping ground. Disengage ignition switch while refueling. Always have a fire extinguisher available.

VIBRATORS—Avoid electric shock by keeping equipment as dry as possible. Do not drop vibrator element on toes. Beware of the concrete splash in the eyes.

WELDING MACHINES—Should not be located over passageways or in wet places. Should be hooked up by electric lineman only (550 v.). Take care in transporting due to top-heaviness. Guard welding cables from shorts, acid, and traffic. Always ground machines.

PLANT EQUIPMENT—Do not use equipment belonging to other departments without permission from an assistant superintendent. Safety Section will check and advise.

WELDING EQUIPMENT—Regulators, hose, torches—this equipment is to be inspected by the issuing supervision every 60 days at least.

MUSHROOMED TOOLS—You are to check these every day. Take mushroomed tools for dressing as the mushroom head appears. Don't wait until the end of the shift or job.

MOTOR TRUCKS—Ascend and descend on ramps which should be provided. Don't jump from any vehicle whether it is in motion or not. Drive carefully. Check horn and brakes. It is required that you sit down while riding.

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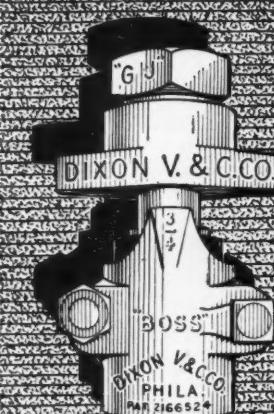
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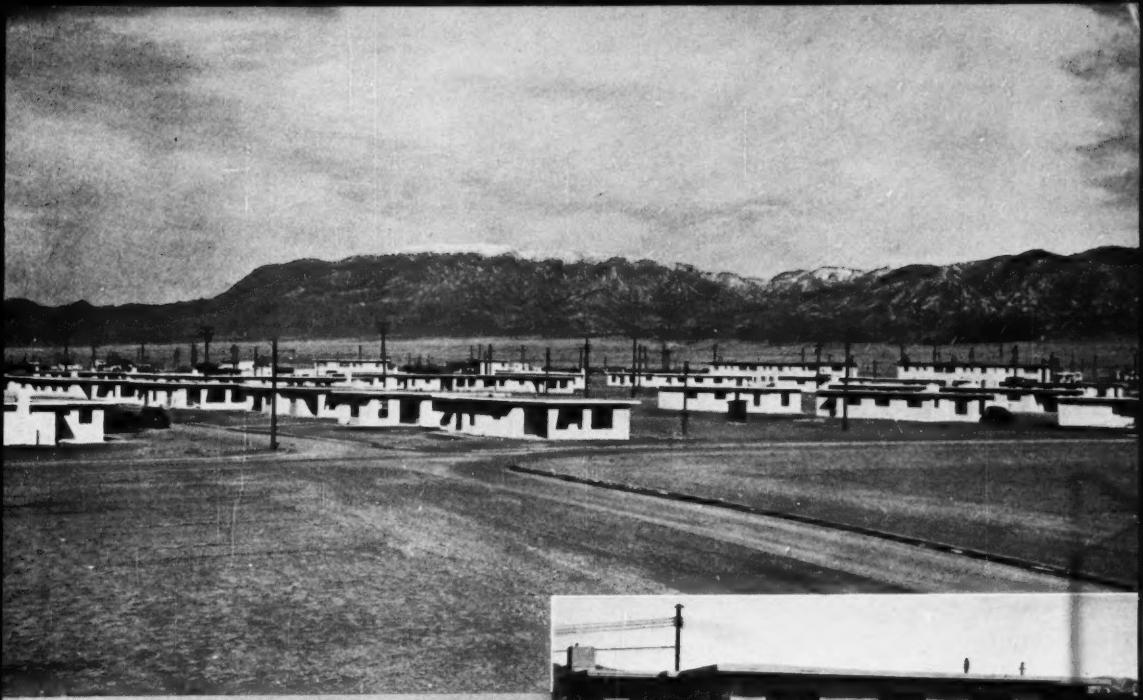
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